COMPACT DISC PLAYER

DP-5010

SERVICE MANUAL

KENWOOD

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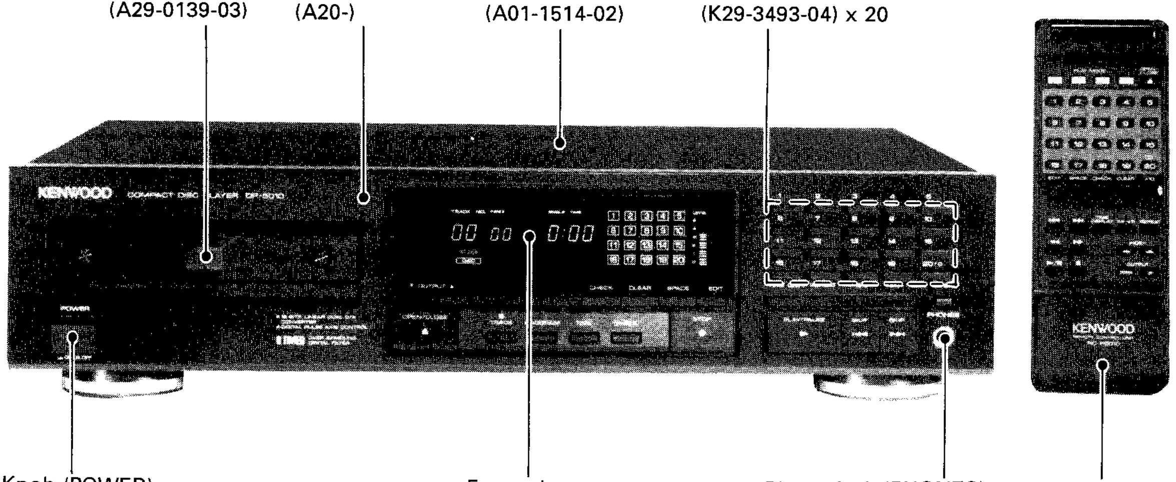
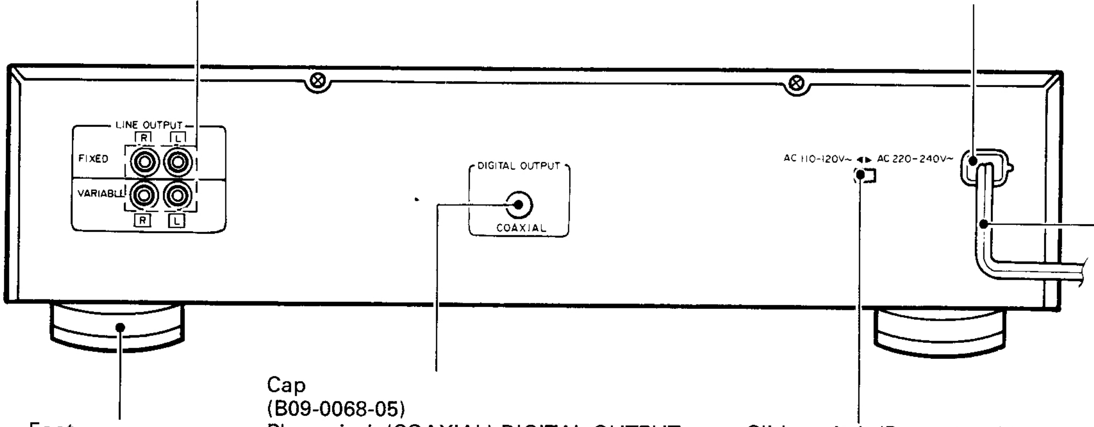
B51-3674-00(O)1842


Panel (Tray)
(A29-0139-03)
Panel ass'y*
(A20-)
Metallic cabinet
(A01-1514-02)
Knob (1~20)
(K29-3493-04) x 20
Knob (POWER)
(K29-3363-14)
Front glass
(B10-0979-13)
Phone jack (PHONES)
(E11-0190-05)
Remoto controller ass'y
(A70-0251-05) : J
(A70-0289-05) : S


Phono jack (LINE OUTPUT)
(E13-0483-05)
Power cord bushing
(J42-0083-05)
AC power cord*
(E30-)
LINE OUTPUT
R
L
FIXED
VARIABLE
DIGITAL OUTPUT
COAXIAL
AC 110-120V~
AC 220-240V~
Foot
(J02-1002-05) x 4
Cap
(B09-0068-05)
Phono jack (COAXIAL) DIGITAL OUTPUT
(E13-0137-05)
Slide switch (Power type)*
(S31-2128-05)

In complicance with Federal Regulations, following are reproductions of labels on, or inside the product relating to laser product safety.

KENWOOD-Corp. certifies this equipment conforms to DHHS Regulations No. 21 CFR 1040. 10, Chapter 1, Subchapter J.

DANGER : Laser radiation when open and interlock defeated. AVOID DIRECT EXPOSURE TO BEAM.

J : Japan made
S : Singapore made

*** Refer to parts list on page 68.**

Caution :
The mechanism ass'y used with the DP-5010 varies in two types depending on the manufacturing location. (Japan, Singapore)

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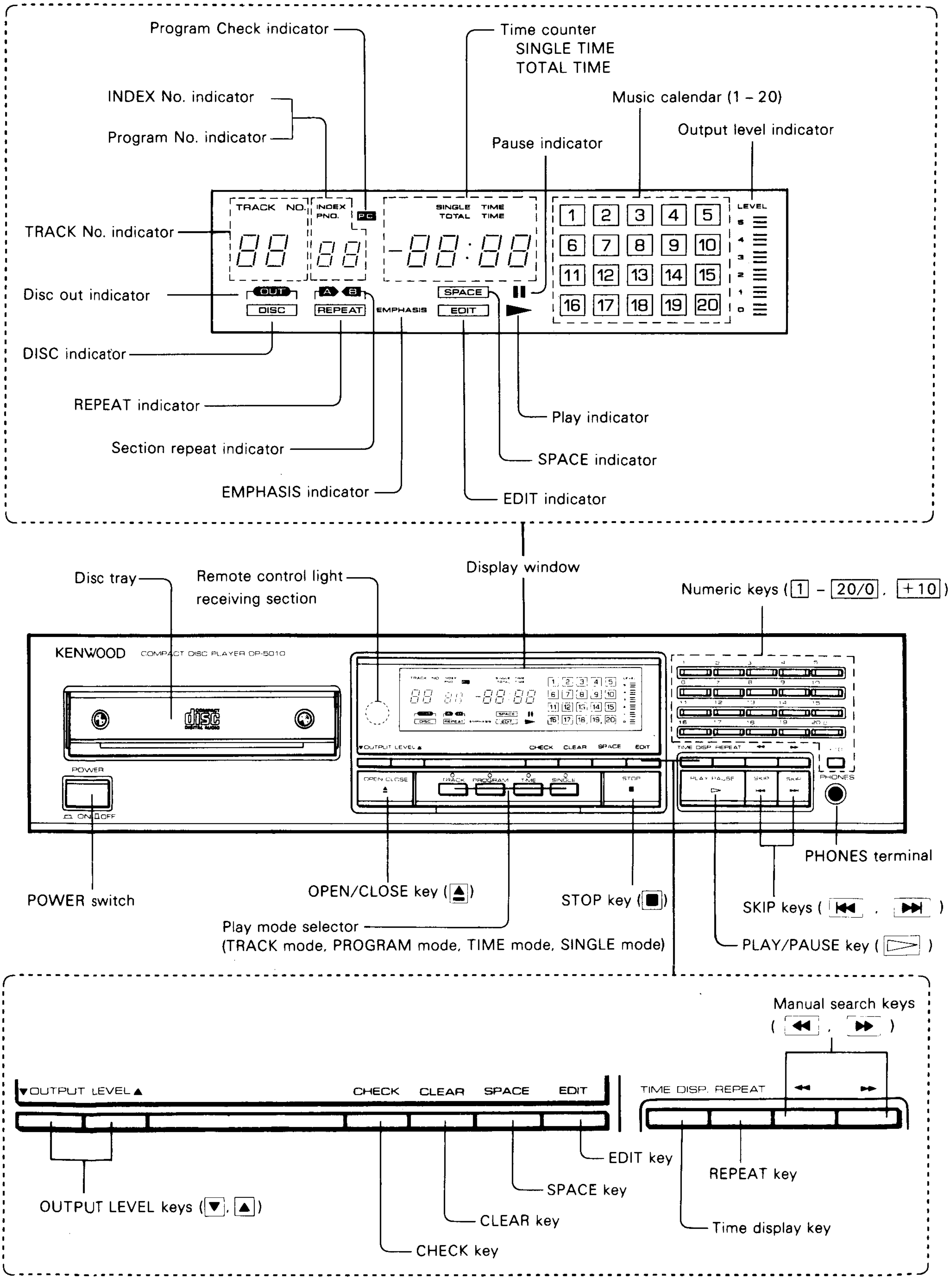
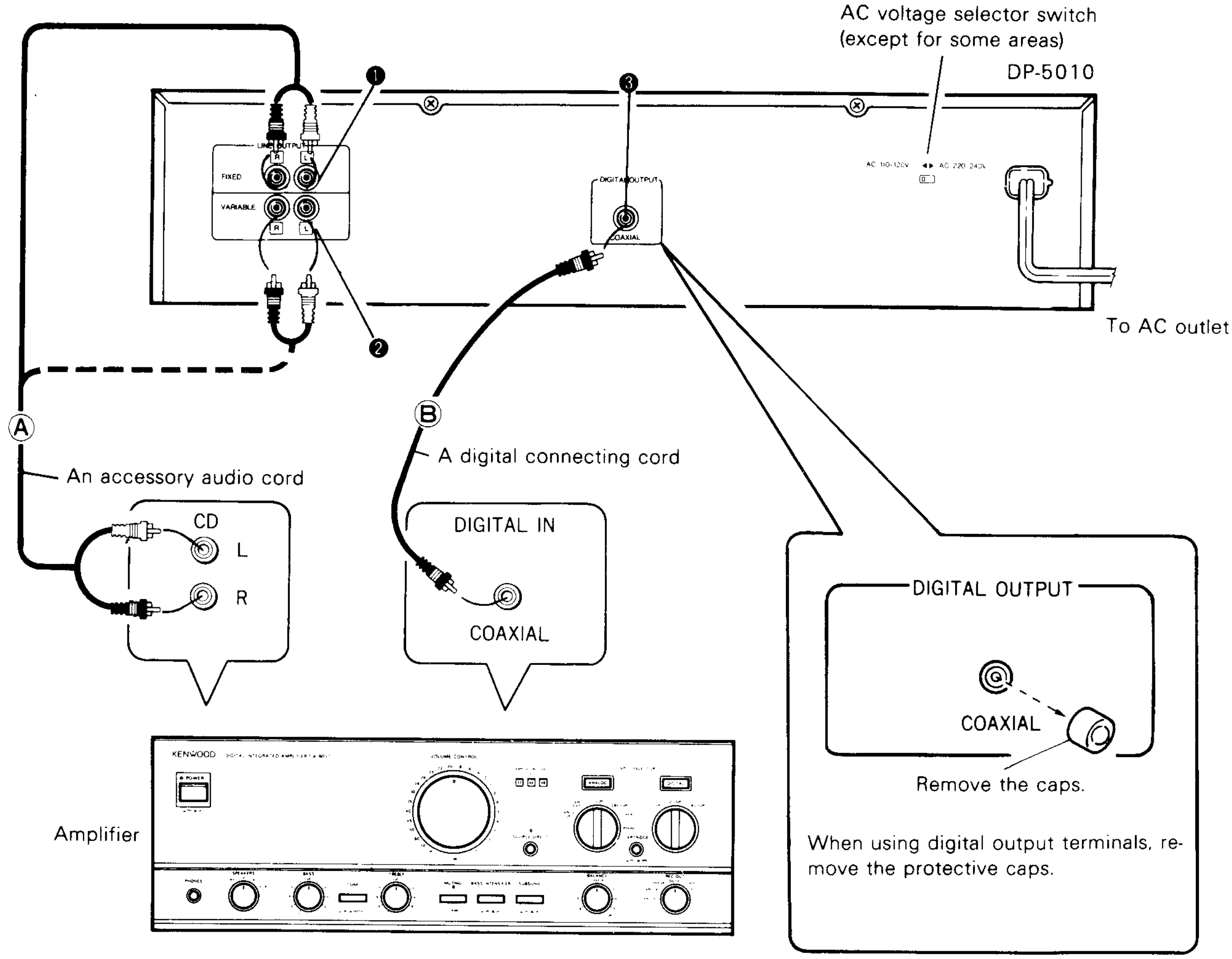
CONTROLS AND INDICATORS


Program Check indicator
Time counter
SINGLE TIME
TOTAL TIME
INDEX No. indicator
Program No. indicator
Music calendar (1 – 20)
Output level indicator
Pause indicator
TRACK No. indicator
Disc out indicator
DISC indicator
REPEAT indicator
Section repeat indicator
EMPHASIS indicator
Play indicator
SPACE indicator
EDIT indicator
TRACK NO.
INDEX
PNO.
PC
SINGLE TIME
TOTAL TIME
LEVEL
OUT
DISC
A B
REPEAT
EMPHASIS
SPACE
EDIT
Disc tray
Remote control light receiving section
Display window
Numeric keys (1 - 20/0, +10)
KENWOOD
COMPACT DISC PLAYER DP-5010
POWER
ON OFF
OPEN/CLOSE
TRACK
PROGRAM
TIME
SINGLE
STOP
PLAY PAUSE
SKIP
PHONES
OUTPUT LEVEL
CHECK
CLEAR
SPACE
EDIT
TIME DISP.
REPEAT
POWER switch
OPEN/CLOSE key (▲)
STOP key (■)
PHONES terminal
SKIP keys (⏮, ⏭)
PLAY/PAUSE key (▷)
Play mode selector
(TRACK mode, PROGRAM mode, TIME mode, SINGLE mode)
Manual search keys
(◀◀, ▶▶)
▼OUTPUT LEVEL▲
CHECK
CLEAR
SPACE
EDIT
TIME DISP.
REPEAT
EDIT key
REPEAT key
SPACE key
OUTPUT LEVEL keys (▼, ▲)
CLEAR key
Time display key
CHECK key

SYSTEM CONNECTIONS

Do not put the plug into the socket until the connecting is completed.
Connect having selected either Ⓐ or Ⓑ below.
Also refer to the manual for the amplifier to which the connection is to be made.


AC voltage selector switch
(except for some areas)
DP-5010
❶
❸
LINE OUTPUT
R
L
FIXED
VARIABLE
DIGITAL OUTPUT
COAXIAL
AC 110-120V
AC 220-240V
To AC outlet
❷
Ⓐ
An accessory audio cord
Ⓑ
A digital connecting cord
CD
L
R
DIGITAL IN
COAXIAL
DIGITAL OUTPUT
COAXIAL
Remove the caps.
KENWOOD
Amplifier

When using digital output terminals, remove the protective caps.

■ Conventional amplifier connection (Ⓐ)

Connect output terminal (LINE OUTPUT) ❶ or ❷ to the CD input terminal of an amplifier with the accessory audio cord supplied.

■ Connection to an amplifier equipped with digital input (Ⓑ)

Connect COAXIAL input terminal of an amplifier to the DIGITAL OUTPUT COAXIAL ❸ with a digital cord.

■ Connecting power cord

It is useful to connect the power cord for this unit to the linking power socket (SWITCHED) of an amplifier.

❶ Fixed output (FIXED):
Output voltage is fixed to 2 Vrms. Use these stereo output jacks for connection to a typical amplifier or receiver.

❷ Variable output (VARIABLE)
The output level of the head phones and the VARIABLE output level can be changed simultaneously by means of the OUTPUT LEVEL keys on the front (▽, △) or remote control.
The output levels are indicated on the display.
Use this when you want to match the output levels with other equipment.

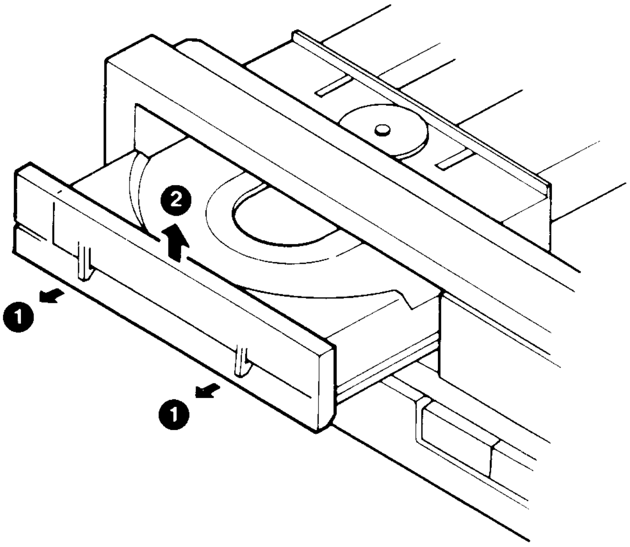
❸ DIGITAL OUTPUT COAXIAL
This terminal is for outputting the audio signals in the original digital code.
Do not connect it to anything other than the digital input terminal of the amplifier because this could risk damaging the amplifier and speaker.

DISASSEMBLY FOR REPAIR

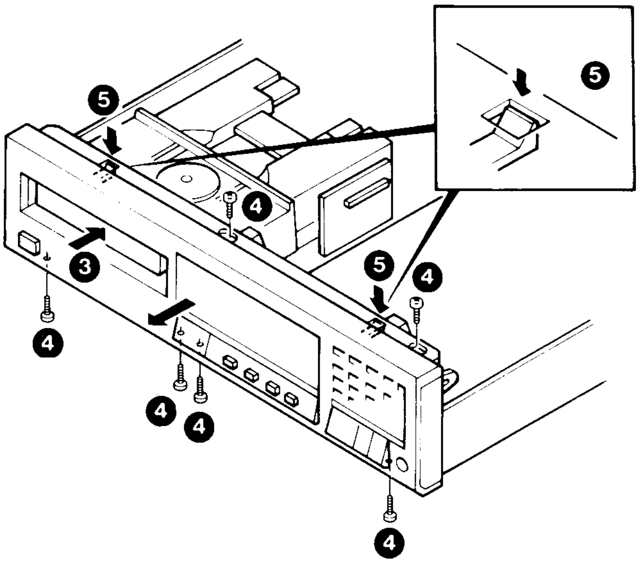
1. Removing of the operation unit

* Take out the case beforehand.

1. Undo the two catches (❶) of the tray panel, then detach the tray panel sliding it upwards (❷).

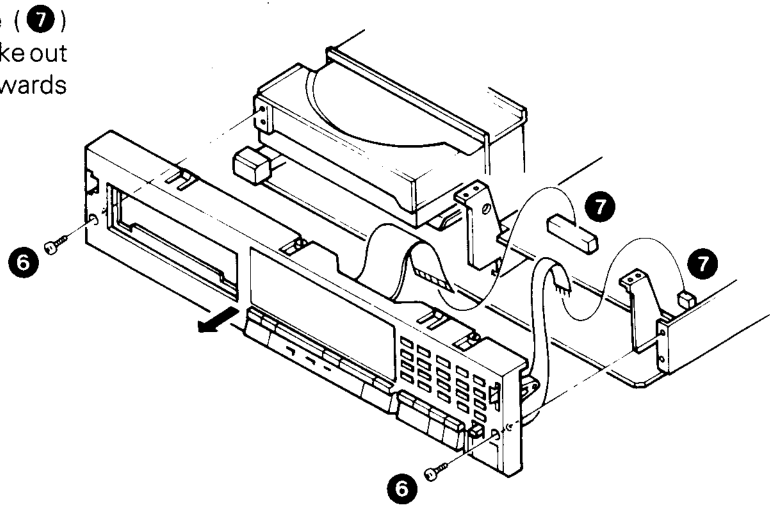


2. Push in the tray in the direction of arrow (❸).
3. Remove the four screws (❹) in the downside of the panel and the two screws (❹) in the upside of the panel, then undo the two catches (❺) in the upside, and take out the front panel in the direction of an arrow towards you.

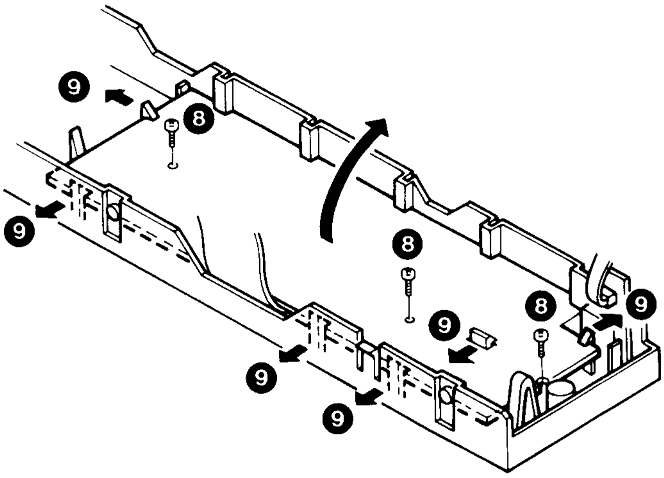


DISASSEMBLY FOR REPAIR

4. Remove the two screws (❻), then disconnect the flexible board (❼) and the headphone cable (❼) from their connectors on the main board, and take out the sub panel in the direction of an arrow towards you.



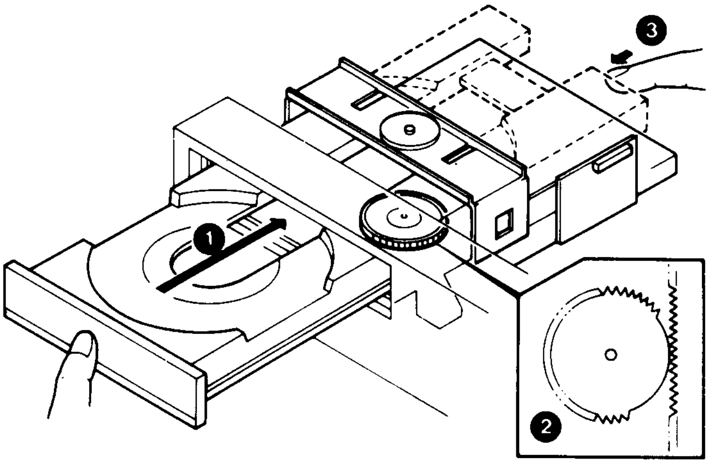
5. Remove the three screws (❽) and undo the six catches (❾), then take out the operation unit in the direction of an arrow.



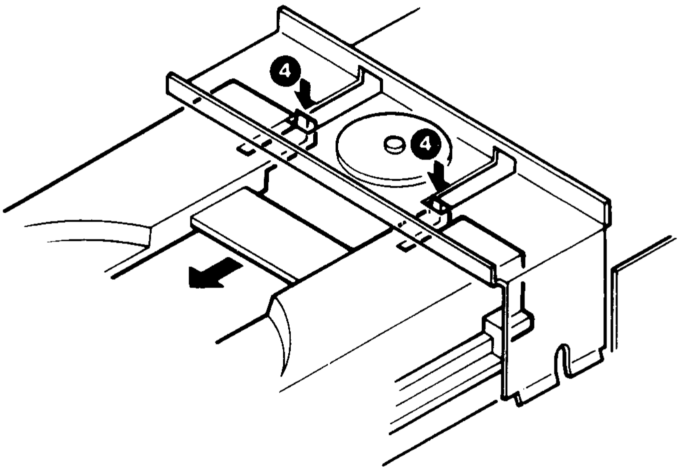
DISASSEMBLY FOR REPAIR (X92-1300-02) JAPAN MADE

1. Removing the tray

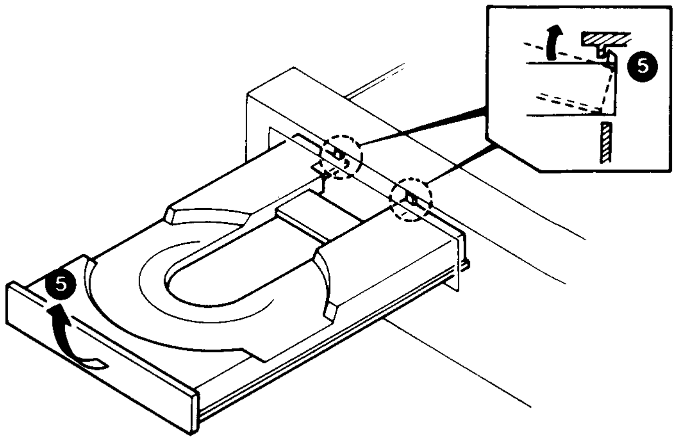
1. With the tray open, turn off the power beforehand.
2. Push in the tray slowly by a hand (❶).
   In this situation, the gear is free (❷).
3. Push the tray towards you and draw out the tray (❸).



4. Push down off the two catches (❹) of the tray stopper, and draw out the tray in the direction of an arrow.



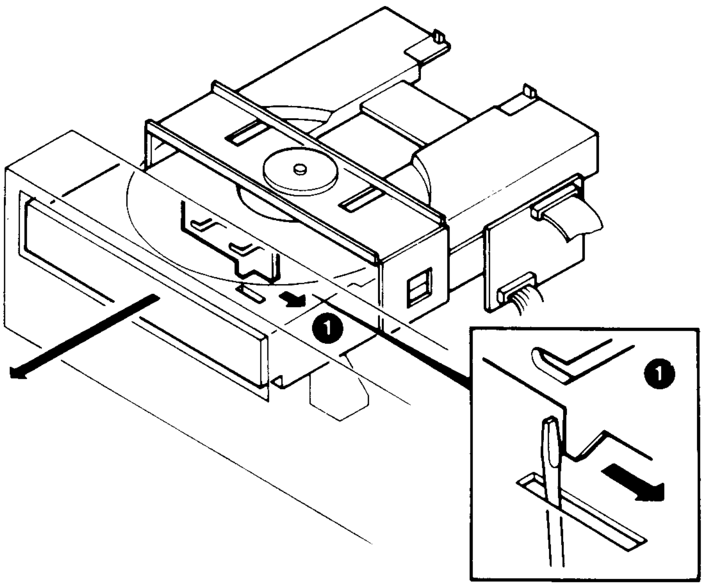
5. When removing the tray, detach it in the direction of an arrow (❺) in which it can be detached without the sub panel caught by the tray stopper.



DISASSEMBLY FOR REPAIR (X92-1300-02)
JAPAN MADE

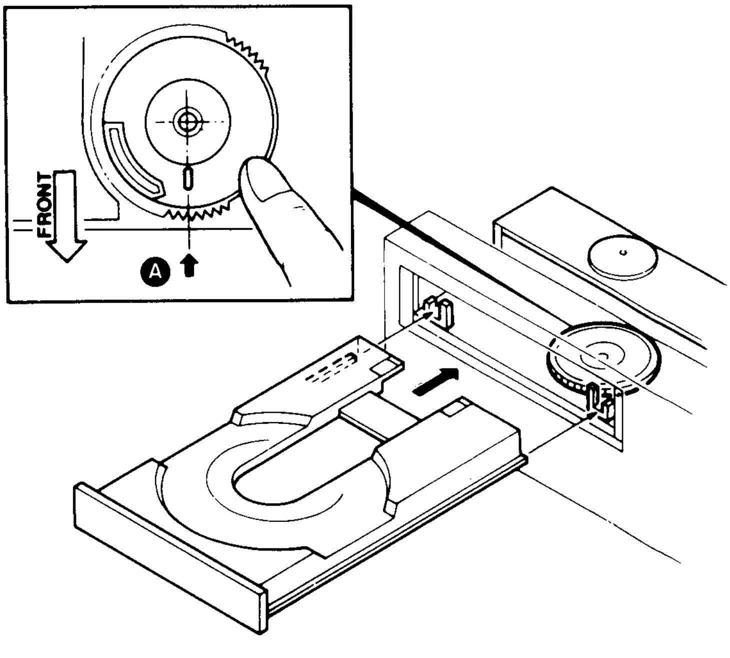
1-1. When the power is not turned on or when the tray does not come out even by pressing the OPEN key

1. Push the lever by a screwdriver, etc. put in through a slit on the bottom plate of the product as shown on the right (❶).
2. Thereby, the gear will be free with the tray slightly advanced. Thus, draw out the tray towards you (❷). Otherwise, as previously stated in step 3. of "2. Removing the tray", push the tray towards you and draw out the tray.



2. Installing the tray

1. Set to location (Ⓐ) the protrusion on the upper side of the gear as shown on the right.
2. Push in the tray along the left and right guides.



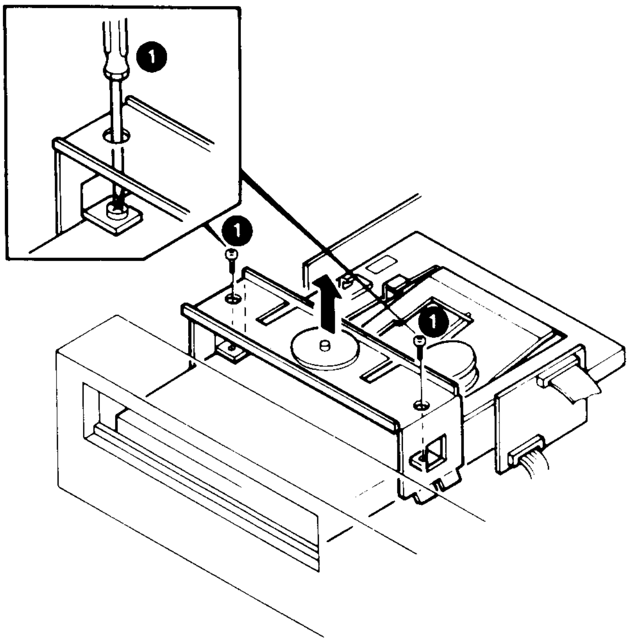
DISASSEMBLY FOR REPAIR (X92-1300-02)

JAPAN MADE

3. Removing the pickup

* Take out the tray beforehand.

1. Remove the two screws (❶), then take out the metal piece of the clamper in the direction of the arrow.



2. Remove the cut washer, then take out the gear (❷).
3. Detach the two fixtures (❸).

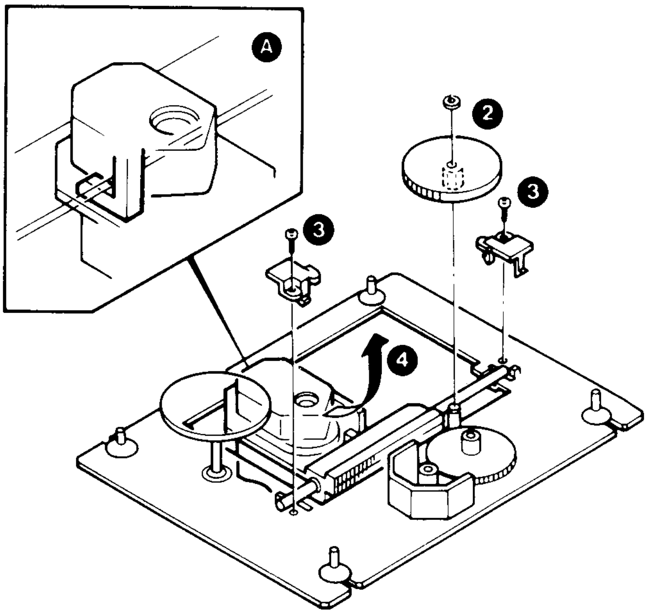
Note 1 : When installing the pickup

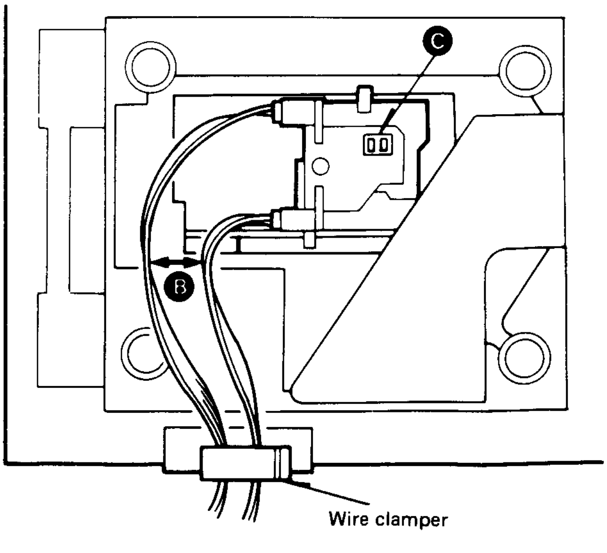
Perform the installation in such a manner that the metal piece comes into engagement with the guide section of the pickup (Ⓐ).

Separate the parallel cords running out of the pickup as much away from each other as possible (Ⓑ).

Note 2 : When replacing the pickup

As to the pickup (J91-0372-05) supplied as a service part, its LD short land (Ⓒ) is solder-shorted for the laser diode (LD) protection. Thus when replacing the pickup, unsolder the LD short land after the connection with the connector.





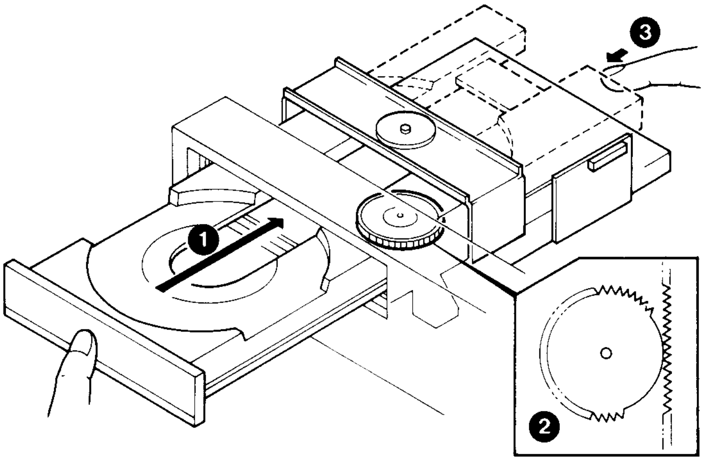
DISASSEMBLY FOR REPAIR (X92-1340-03)
SINGAPORE MADE

1. Removing and installing the tray

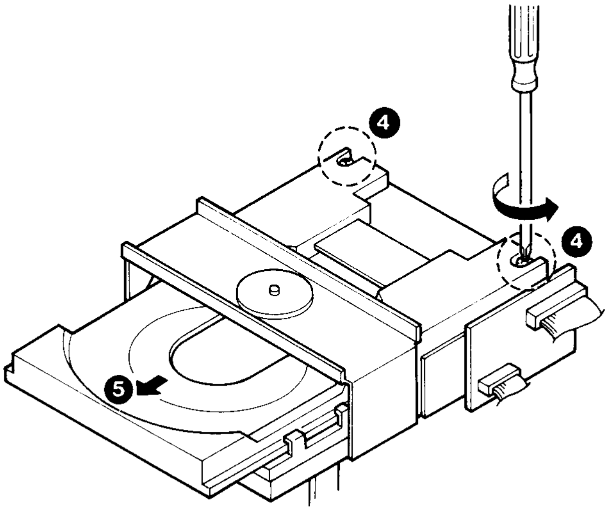
1–1. Removing the tray

* Open the disc tray and turn the power OFF.

1. Push the tray gradually into the unit (❶) by your hand. In this condition, the gear will be released (❷).
2. Push the rear end of the tray toward the front to remove the tray until it stops (❸).

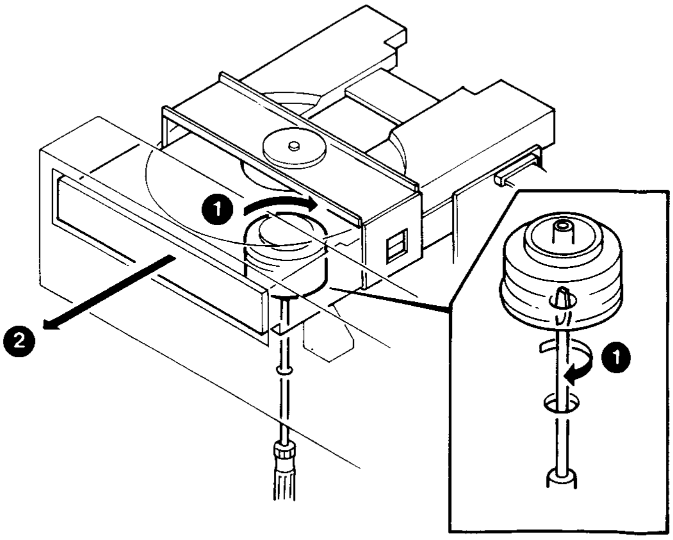


3. Remove the two screws (❹) of the tray stopper.
4. Draw out the tray (❺).



Note : When the power can not be turned ON, or when the tray can not be opened by passing the OPEN key :

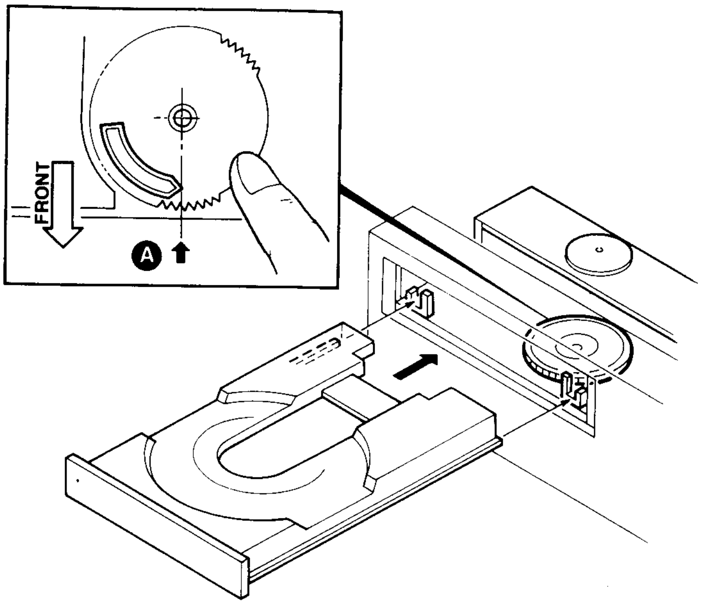
1) Rotate the control cam by a screwdriver, etc. set into the hole on the bottom plate of the unit as shown (❶).
2) When the tray is comes out slightly, the gear is released. Then take out the tray toward the front (❷).



DISASSEMBLY FOR REPAIR (X92-1340-03)
SINGAPORE MADE

1–2. Installing the tray

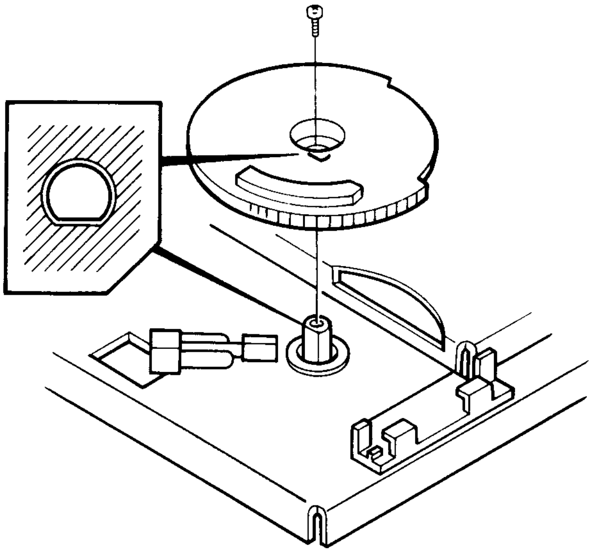
1. Set the gear to the position (Ⓐ) shown in the diagram.
2. Insert the tray along with the guide rails on the both sides.



2. Installing the loading gear

2–1. Installing the drive gear

Align the drive gear with the cutout section of the control cam to install it.

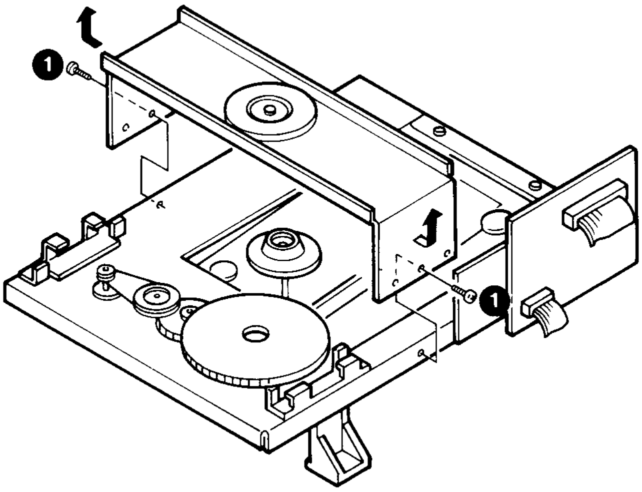


DISASSEMBLY FOR REPAIR (X92-1340-03)
SINGAPORE MADE

3. Removing the pickup

* Remove the tray.

1. Remove the two screws (①) and remove the catch of the clamper.



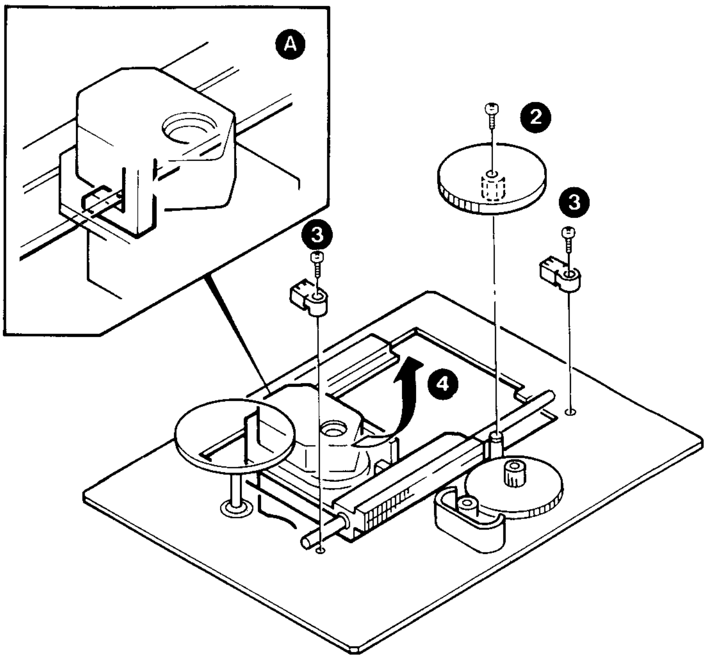
2. Remove one screw and take out the gear (②).
3. Remove the two shaft clamper (③).
4. Remove the pickup in the direction of an arrow (④).

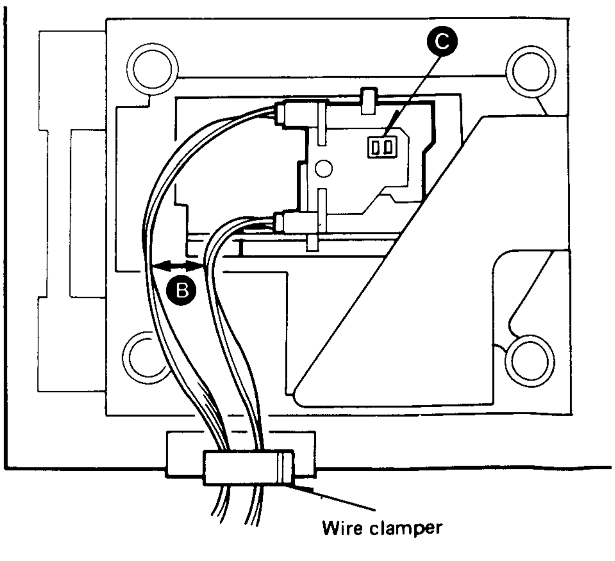
Note 1 : When installing the pickup :

- ○ Install the pickup so that the metal fittings are engaged with the guide of the pickup (Ⓐ).
- ○ Keep the flat cable from the pickup away from the unit as far as possible (Ⓑ).

Note 2 : When the pickup has been replaced :

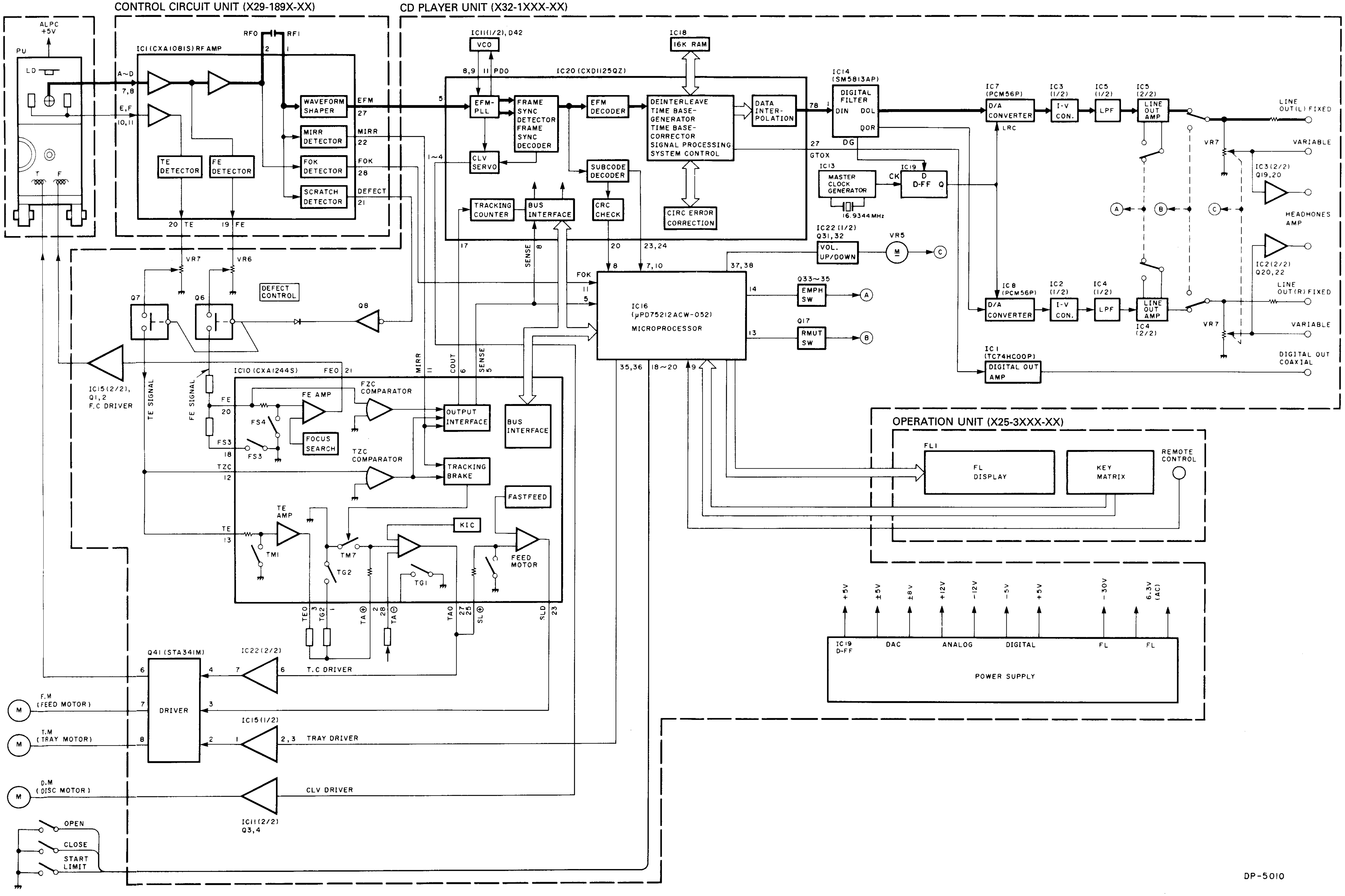
- ○ For the protection of the laser diode (LD), the LD short land of the pickup may be shorted. If so, after connecting the connector, unsolder the short land (Ⓒ).





DP-5010 DP-5010

BLOCK DIAGRAM


CONTROL CIRCUIT UNIT (X29-189X-XX)
CD PLAYER UNIT (X32-1XXX-XX)
OPERATION UNIT (X25-3XXX-XX)
ALPC +5V
PU
LD
T
F
A~D
7,8
E,F
10,11
RFO
RFI
IC1 (CXA1081S) RF AMP
WAVEFORM SHAPER
MIRR DETECTOR
FOK DETECTOR
SCRATCH DETECTOR
TE DETECTOR
FE DETECTOR
EFM
MIRR
FOK
DEFECT
20 TE
19 FE
VR7
VR6
Q7
Q6
Q8
DEFECT CONTROL
IC15 (2/2), Q1,2 F.C DRIVER
TE SIGNAL
FE SIGNAL
IC11 (1/2), D42
VCO
8,9
11 PDO
IC20 (CXD1125QZ)
EFM-PLL
FRAME SYNC DETECTOR FRAME SYNC DECODER
EFM DECODER
SUBCODE DECODER
CRC CHECK
CLV SERVO
TRACKING COUNTER
BUS INTERFACE
IC18
16K RAM
DEINTERLEAVE TIME BASE-GENERATOR TIME BASE-CORRECTOR SIGNAL PROCESSING SYSTEM CONTROL
DATA INTER-POLATION
CIRC ERROR CORRECTION
IC14 (SM5813AP)
DIGITAL FILTER
DIN
DOL
DOR
DG
GTOX
IC13
MASTER CLOCK GENERATOR
16.9344MHz
IC19
D-FF
CK
D
Q
IC22 (1/2) Q31,32
VOL. UP/DOWN
VR5
M
IC16 (μPD75212ACW-052) MICROPROCESSOR
SENSE
FOK
37,38
35,36
18~20
Q33~35
EMPH SW
Q17
RMUT SW
IC7 (PCM56P)
D/A CONVERTER
LRC
IC3 (1/2)
I-V CON.
IC5 (1/2)
LPF
IC5 (2/2)
LINE OUT AMP
IC8 (PCM56P)
IC2 (1/2)
IC4 (1/2)
IC4 (2/2)
LINE OUT(L) FIXED
VARIABLE
VR7
IC3 (2/2) Q19,20
HEADHONES AMP
IC2 (2/2) Q20,22
LINE OUT(R) FIXED
IC1 (TC74HC00P)
DIGITAL OUT AMP
DIGITAL OUT COAXIAL
IC10 (CXA1244S)
FE AMP
FZC COMPARATOR
FS4
FS3
FOCUS SEARCH
TZC COMPARATOR
TZC
OUTPUT INTERFACE
BUS INTERFACE
TRACKING BRAKE
TE AMP
TM1
TM7
TG2
TG1
KIC
FASTFEED
FEED MOTOR
MIRR
COUT
SENSE
TEO
TG2
TA⊕
TA⊖
TAO
SL⊕
SLD
Q41 (STA341M)
DRIVER
IC22 (2/2)
T.C DRIVER
F.M (FEED MOTOR)
T.M (TRAY MOTOR)
IC15 (1/2)
TRAY DRIVER
D.M (DISC MOTOR)
CLV DRIVER
IC11 (2/2) Q3,4
OPEN
CLOSE
START LIMIT
FL1
FL DISPLAY
KEY MATRIX
REMOTE CONTROL
+5V
±5V
±8V
+12V
-12V
-5V
+5V
-30V
6.3V (AC)
IC19 D-FF
DAC
ANALOG
DIGITAL
FL
FL
POWER SUPPLY

1. Description of components

1-1. OPERATION UNIT (X25-3510-00) : Japan made (X25-3620-00) : Singapore made

Ref. No.	Part No.	Use/Function	Operation/Condition/Compatibility
IC1	LB1433N	Level meter IC	FL tube level indicator driver.
Q2~6	DTC124EN	Digital transistors	Level indicator selection switch.
Q7~11	2SC1740S(Q,R)	Drivers	Drivers of grids G2, G3, G4, G5 and G8.

1-2. CONTROL CIRCUIT UNIT (X29-1890-05) : Japan made (X29-1890-06) : Singapore made

Ref. No.	Part No.	Use/Function	Operation/Condition/Compatibility
IC1	CXA1081M	RF amplifier	Generation of focus error signal, generation of tracking error signal, generation of RF signal and its phase compensation, and auto asymmetry correction.
Q1	2SA1426	LD switch	Laser diode B line supply switch.
Q2	2SC945(A)(Q,P)	FE switch	Focus error amplifier bias selection switch.

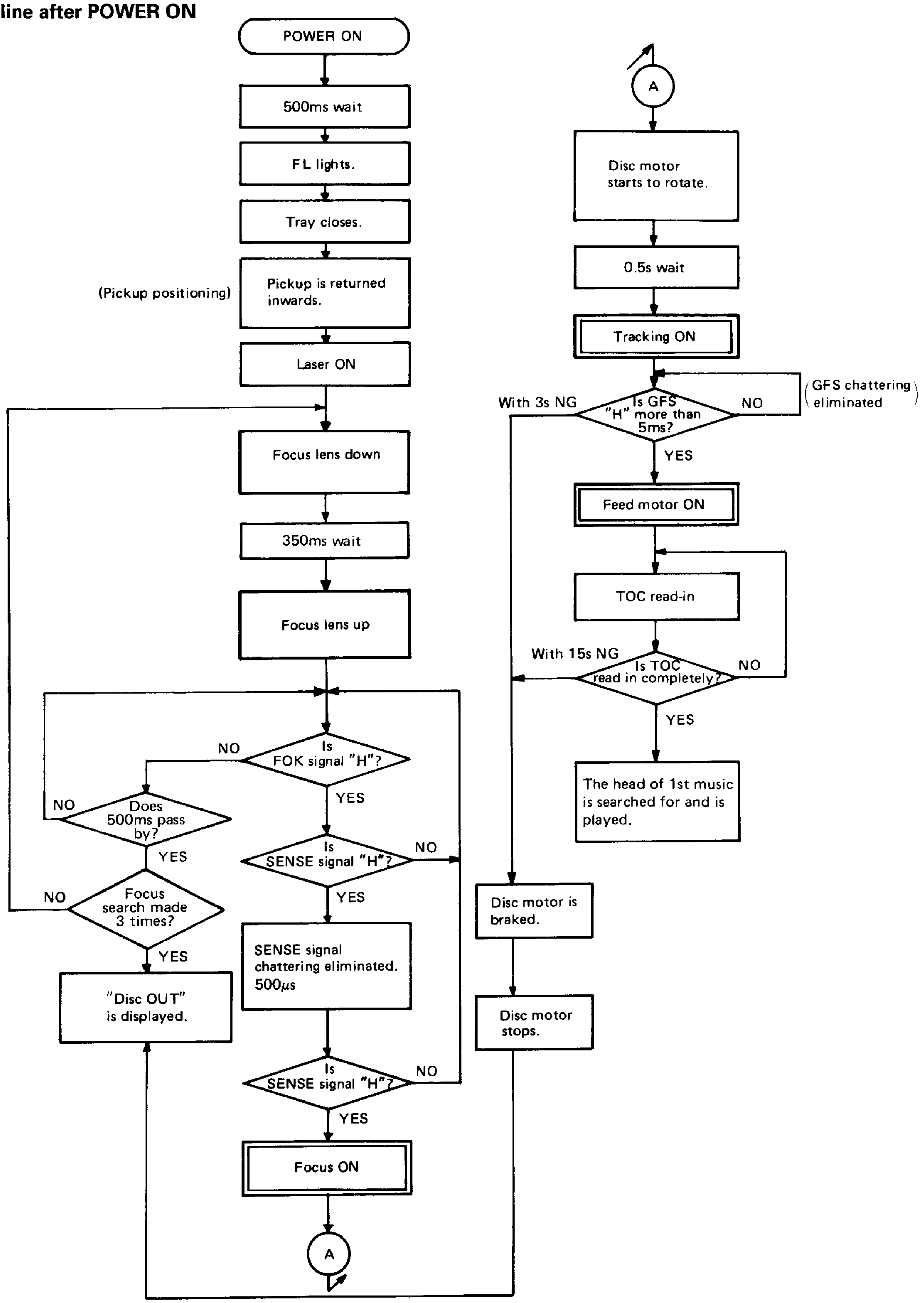
1-3. CD PLAYER UNIT (X32-136X-XX) (0-11 : P 0-21 : U,M,UE 2-71 : X,E 2-72 : T) : Japan made
(X32-142X-XX) (0-50 : T 2-71 : E) : Singapore made

Ref. No.	Part No.	Use/Function	Operation/Condition/Compatibility
IC1	TC74HC00P	Digital out driver	Digital output buffer amplifier, and power ON/OFF reset signal generation.
IC2,3	NJM4558D	I-V conversion	(1/2) : Conversion of D/A converter current output into a voltage form. (2/2) : Headphone amplifier.
IC4	NJM4565D	Operation amplifier	(1/2) : Rch 20kHz LPF. (2/2) : Rch output buffer amplifier.
IC5	NJM4565D	Operation amplifier	(1/2) : Lch 20kHz LPF. (2/2) : Lch output buffer amplifier.
IC6	M5218P	Operation amplifier	Error amplifier of ±12V regulated power supply.
IC7,8	PCM56P-L	D/A converter	Conversion of 16-bit digital data into an analog form.
IC9	M5218P	Operation amplifier	(1/2) : Error amplifier of –12V regulated power supply. (2/2) : Error amplifier of +5V regulated power supply.
IC10	CXA1244S	Servo IC	For each of focus, tracking and sled servo control.
IC11	NJM4558D	PLL	(1/2) : The phase comparison signal from pin 11 (PD0) of the digital signal processing LSI (CXD1125QZ) is input in try state, and this IC controls the varicap voltage by that output.
		CLV servo	(2/2) : This IC controls the disc motor speed by four outputs MON, MDP, MDS and FSW of the digital signal processing LSI (CXD1125QZ). MON ..... Disc motor ON/OFF MDP ..... Disc motor rough control and phase control MDS ..... Disc motor speed control FSW ..... Disc motor filter time constant selection
IC12	M5218P	Operation amplifier	Error amplifier of +5V regulated power supply.
IC13	TC74HC04P	Clock pulse oscillation	Generation of master clock pulse (16.9344MHz).
IC14	SM5813AP	Digital filter	8x over-sampling (18-bit).
IC15	NJM4558D	Operation amplifier	(1/2) : Tray OPEN/CLOSE voltage control. (2/2) : Focus actuator phase compensation amplifier.
IC16	µPD75212ACW-052	Microprocessor	Display, each key input process and servo IC control.
IC18	CXK5816SP-15L	Static RAM	EFM demodulation data time axis correction 16K S-RAM.
IC19	TC74HC74P	D-F.F.	Bit clock pulse and LR clock pluse timing adjustment.
IC20	CXD1125Q CXD1125QZ	Digital signal processing IC	Bit clock pulse regeneration by EFM-PLL circuit, EFM data demodulation, and frame sync signal detection, protection and interpolation.
IC21	µPC78L05J	3-terminal regulator	+5V regulation (for display PC board).
IC22	NJM4558D	Operation amplifier	(1/2) : Electrically driven VR up/down voltage generation. (2/2) : Tracking actuator drive buffer.
Q1	2SB941	Driver	Focus actuator drive current booster.
Q2	2SC3940A	Driver	Focus actuator drive current booster.
Q3	2SD1266(Q,P)	Driver	Disc motor drive current booster.
Q4	2SA1534A	Driver	Disc motor drive current booster.
Q5	DTC124EN	Switch	Controls the bias switch of the focus error signal by signal SENS, and also controls the focus gains FS3 of the servo IC.
Q6	2SK246(Y,GR)	Switch	Controlled by the defect control switch (Q8). When flaw is detected, Q6 turns OFF to open the focus servo loop.
Q7	2SK246(Y,GR)	Switch	Controlled by the defect control switch (Q8) in the same manner as Q6. When flaw is detected, Q7 turns OFF to open the tracking servo loop.
Q8	2SA733(A)(Q,P) 2SA933S(Q,R)	Switch	Controls the defect detection switch, and the switches Q6 and Q7 for focus and tracking errors. When flaw is detected : OFF, At normal play : ON (Inverted logic of signal DEFECT)
Q9	2SC945(A)(Q,P) 2SC1740S(Q,R)	Switch	Inputs the tracking error signal to pin ATSC (anti-shock) through BPF to prevent sound jump due to shock by external disturbance.
Q10	2SA733(A)(Q,P) 2SA933S(Q,R)	Power supply	FL tube reference voltage supply (–30V).
Q11	2SA1534A	Power supply	FL tube reference voltage supply (–30V).
Q12	2SA733(A)(Q,P) 2SA933S(Q,R)	Power supply	–5V digital power error amplifier.
Q13,14	2SA954(L,K)	Ripple filter	For –5V regulated power supply.
Q15,16	2SC945(A)(Q,P) 2SC1740S(Q,R)	Reset	Power ON/OFF reset pulse generation.
Q17	2SA733(A)(Q,P)	Switch	Output muting relay driver.
Q18	2SC2003(L,K)	Ripple filter	For +12V regulated power supply.
Q19	2SC2003(L,K)	Driver	Headphone amplifier driver (Lch).
Q20	2SC2003(L,K)	Driver	Headphone amplifier driver (Rch).
Q21	2SA954(L,K)	Driver	Headphone amplifier driver (Lch).
Q22	2SA954(L,K)	Driver	Headphone amplifier driver (Rch).
Q30	2SA954(L,K)	Ripple filter	For –12V regulated power supply.
Q31	2SC3666	Driver	Electrically driven VR current booster.
Q32	2SA1426	Driver	Electrically driven VR current booster.
Q33,34	2SC2878(B)	Switch	De-emphasis switch, which is controlled by digital transistor Q35. (De-emphasis "H" : ON)
Q35	DTA124EN	Digital transistor switch	Controlled by pin 14 of microprocessor. (At de-emphasis : ON)
Q36	2SB722(Q,P,E)	Ripple filter	For +5V regulated power supply.
Q37	2SC2003(L,K)	Ripple filter	For +5V regulated power supply (for D.P.A.C).
Q38	2SD1266(Q,P)	Ripple filter	For +5V regulated power supply.
Q40	2SC2003(L,K)	Ripple filter	For –12V regulated power supply.
Q41	STA341M	Driver	(1/3) : Tray motor driver. (2/3) : Feed motor driver. (3/3) : Tracking coil driver.

CIRCUIT DESCRIPTION

2. Set mode flowchart

2–1. Outline after POWER ON


POWER ON
500ms wait
FL lights.
Tray closes.
(Pickup positioning)
Pickup is returned inwards.
Laser ON
Focus lens down
350ms wait
Focus lens up
NO
Is FOK signal "H"?
YES
NO
Does 500ms pass by?
YES
NO
Focus search made 3 times?
YES
"Disc OUT" is displayed.
Is SENSE signal "H"?
NO
YES
SENSE signal chattering eliminated. 500µs
Is SENSE signal "H"?
NO
YES
Focus ON
A
A
Disc motor starts to rotate.
0.5s wait
Tracking ON
With 3s NG
Is GFS "H" more than 5ms?
NO
GFS chattering eliminated
YES
Feed motor ON
TOC read-in
With 15s NG
Is TOC read in completely?
NO
YES
The head of 1st music is searched for and is played.
Disc motor is braked.
Disc motor stops.

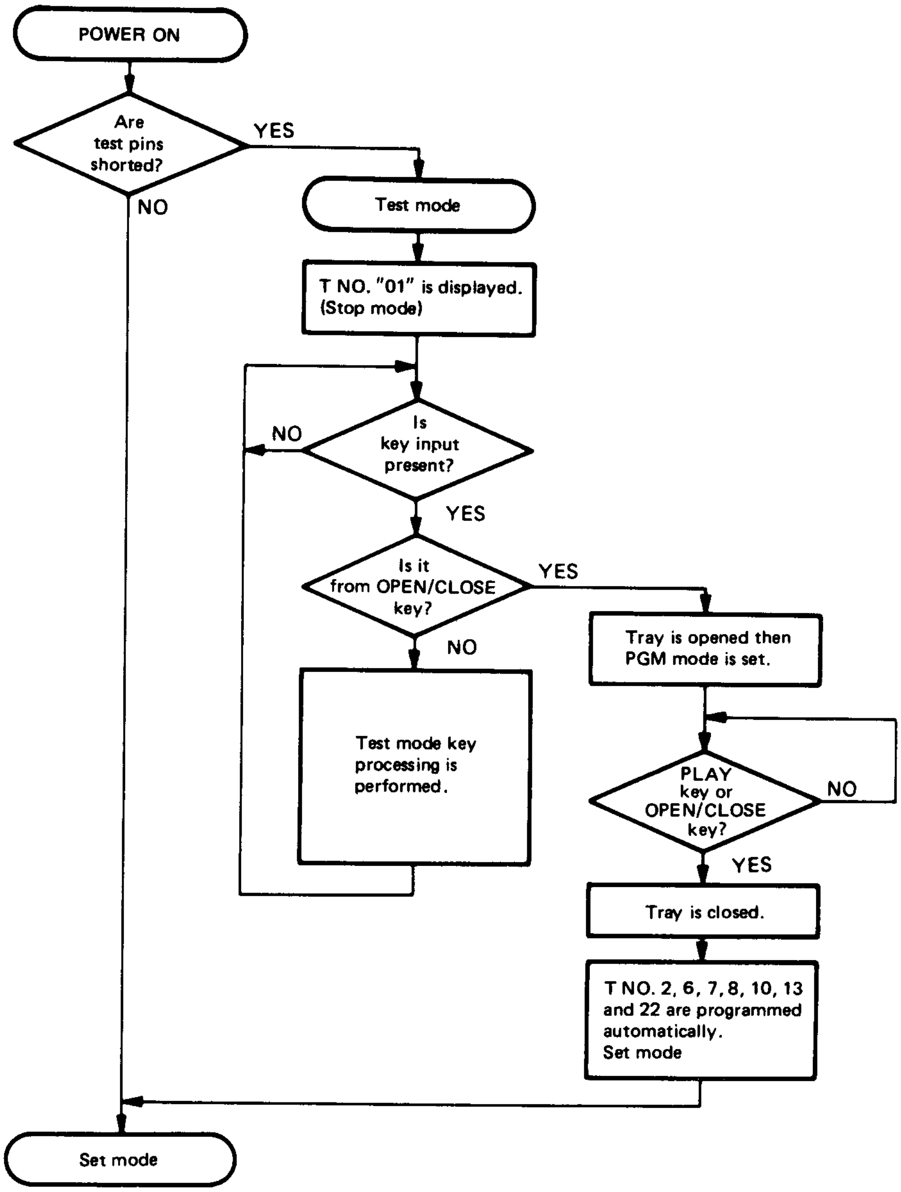
CIRCUIT DESCRIPTION

3. Test mode

3–1. Setting the test mode

Unlike previous models, this microprocessor can be put to the test mode by just short-circuiting the test pins even in the set mode (normal condition). (However, the disc must be present in the unit.)

The test mode can also be initiated with the previous method, i. e. by switching the power on with the test pins short-circuited.


POWER ON
Are test pins shorted?
YES
NO
Test mode
T NO. "01" is displayed. (Stop mode)
Is key input present?
NO
YES
Is it from OPEN/CLOSE key?
YES
NO
Test mode key processing is performed.
Tray is opened then PGM mode is set.
PLAY key or OPEN/CLOSE key?
NO
YES
Tray is closed.
T NO. 2, 6, 7, 8, 10, 13 and 22 are programmed automatically. Set mode
Set mode

CIRCUIT DESCRIPTION

3–2. Key and functions valid in test mode

<table>
<tr><th>No.</th><th>Input key</th><th>Function</th><th>Track No. display</th></tr>
<tr><td>1</td><td>PLAY</td><td>(1) Focusing servo .... ON.
(2) Tracking servo .... ON.
(3) Feed servo .... ON.</td><td>05
↓
Displayed for a few seconds after completion of (1), (2) and (3).
↓
Disc Track No. is displayed.</td></tr>
<tr><td>2</td><td>CHECK</td><td>(1) Focusing servo .... ON.
(2) Tracking servo .... OFF.
(3) Feed servo .... OFF.</td><td>03</td></tr>
<tr><td>3</td><td>CLEAR</td><td>(1) Focusing servo .... ON.
(2) Tracking servo .... ON.
(3) Feed servo .... OFF.</td><td>04</td></tr>
<tr><td>4</td><td>STOP</td><td>(1) Focusing servo .... OFF.
(2) Tracking servo .... OFF.
(3) Feed servo .... OFF.</td><td>01</td></tr>
<tr><td>5</td><td>REPEAT</td><td>(1) Tray .... Opened.
(2) Laser .... ON.
The REPEAT function is canceled when the tray is closed by pressing the tray OPEN/CLOSE key.
The Track No. display 01 .</td><td>02</td></tr>
<tr><td>6</td><td>▶▶</td><td>In the STOP mode, moves the pickup slightly toward the outer position of disc.
When feed servo is ON, sets the track gain to "H".</td><td></td></tr>
<tr><td>7</td><td>◀◀</td><td>In the STOP mode, moves the pickup slightly toward the inner position of disc.
When feed servo is ON, sets the track gain to "L".</td><td></td></tr>
<tr><td>8</td><td>▶▶|</td><td>Turns all FL display lamps ON.</td><td></td></tr>
<tr><td>9</td><td>|◀◀</td><td>Turns all FL display lamps OFF.</td><td></td></tr>
<tr><td>10</td><td>Numeric key
(0 ~ 9)</td><td>Jumps tracks as shown below.
<table>
<tr><td>Key</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>Number of tracks</td><td>1</td><td>4</td><td>16</td><td>32</td><td>1000</td></tr>
<tr><td>Direction</td><td colspan="5">Outer</td></tr>
<tr><td>Key</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr>
<tr><td>Number of tracks</td><td>1</td><td>4</td><td>16</td><td>32</td><td>1000</td></tr>
<tr><td>Direction</td><td colspan="5">Inner</td></tr>
</table></td><td></td></tr>
<tr><td>11</td><td>OPEN/CLOSE
or +10</td><td>When the tray is opened then closed, Track No. 2, 6, 7, 8, 10, 13 and 22 are programmed and the test mode is canceled.</td><td></td></tr>
<tr><td>12</td><td>P. MODE</td><td>Track No. 2, 6, 7, 8, 10, 13 and 22 are programmed and the test mode is canceled. (*Note 1)</td><td></td></tr>
</table>

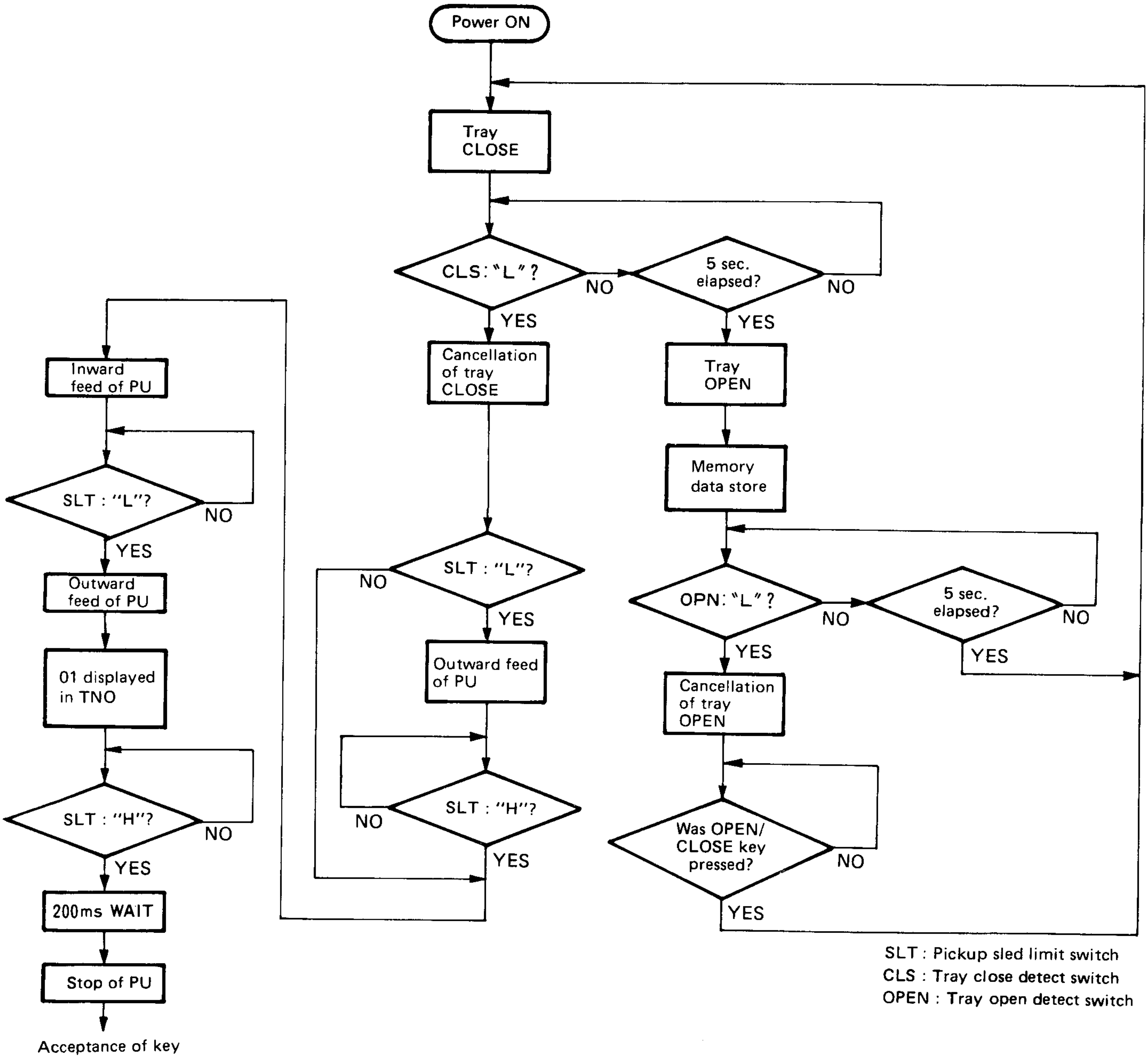
Note 1. Test CD type-4 by SONY

Track No.	Contents				Emphasis	Time	Purpose
2	1kHz	Sine wave	0dB	L&R	OFF	56"	Reference
6	20kHz	Sine wave	0dB	L&R	OFF	56"	Modulation noise
7	Infinity zero		–∞dB	L&R	OFF	56"	S/N
8	1kHz	Sine wave	0dB	L	OFF	56"	Channel separation
10	1kHz	Sine wave	0dB	R	OFF	56"	
13	16kHz	Sine wave	–9.04dB	L&R	ON	56"	De-emphasis
22	Music				OFF	23"	Access

CIRCUIT DESCRIPTION

3–3. Flowchart of test mode

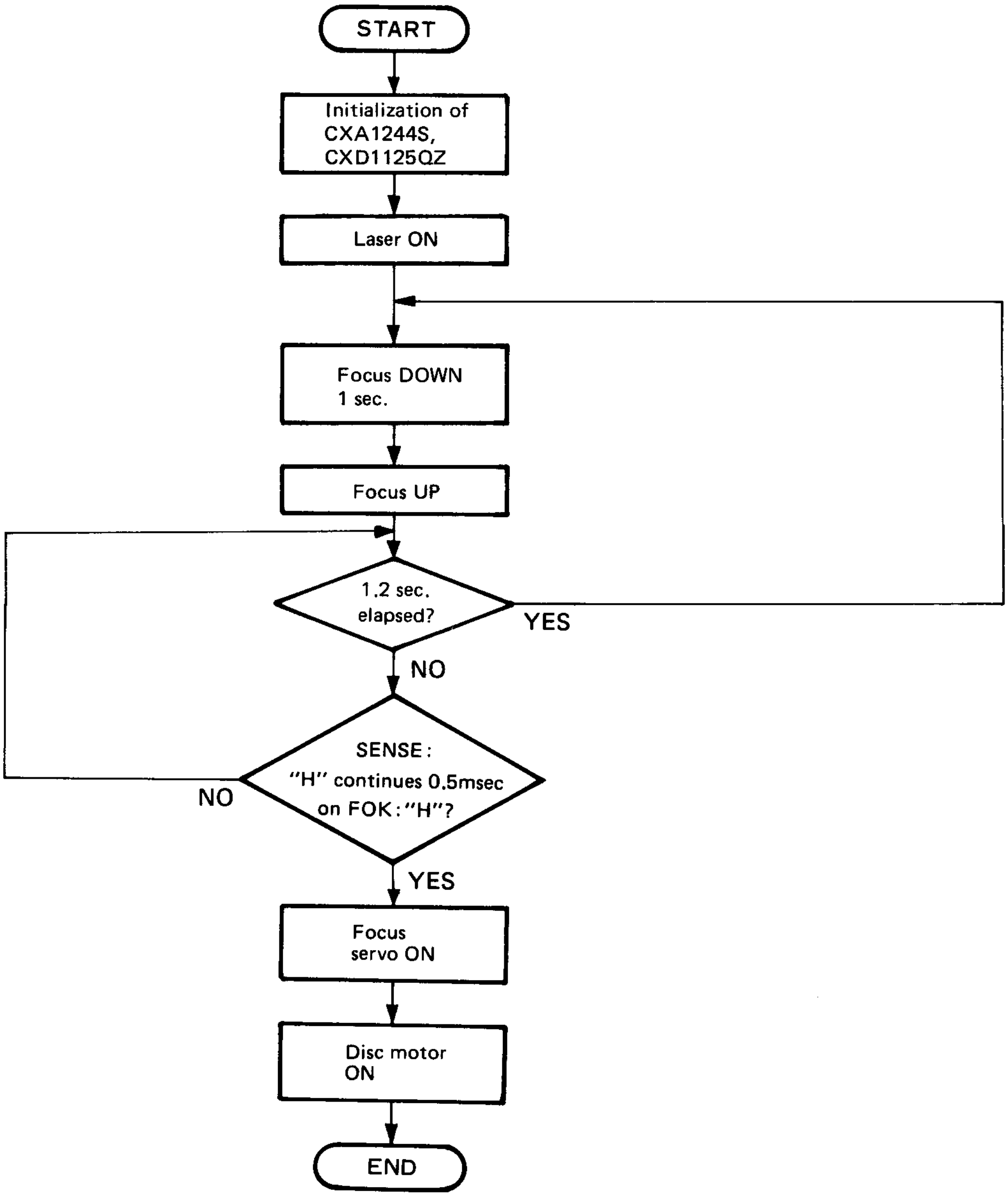
• Flowchart from tray OPEN status after power ON


Power ON
Tray CLOSE
CLS: "L"?
NO
YES
5 sec. elapsed?
NO
YES
Cancellation of tray CLOSE
Tray OPEN
Memory data store
OPN: "L"?
NO
YES
5 sec. elapsed?
NO
YES
Cancellation of tray OPEN
Was OPEN/ CLOSE key pressed?
NO
YES
SLT : "L"?
NO
YES
Outward feed of PU
SLT : "H"?
NO
YES
Inward feed of PU
SLT : "L"?
NO
YES
Outward feed of PU
01 displayed in TNO
SLT : "H"?
NO
YES
200ms WAIT
Stop of PU
Acceptance of key

SLT : Pickup sled limit switch
CLS : Tray close detect switch
OPEN : Tray open detect switch

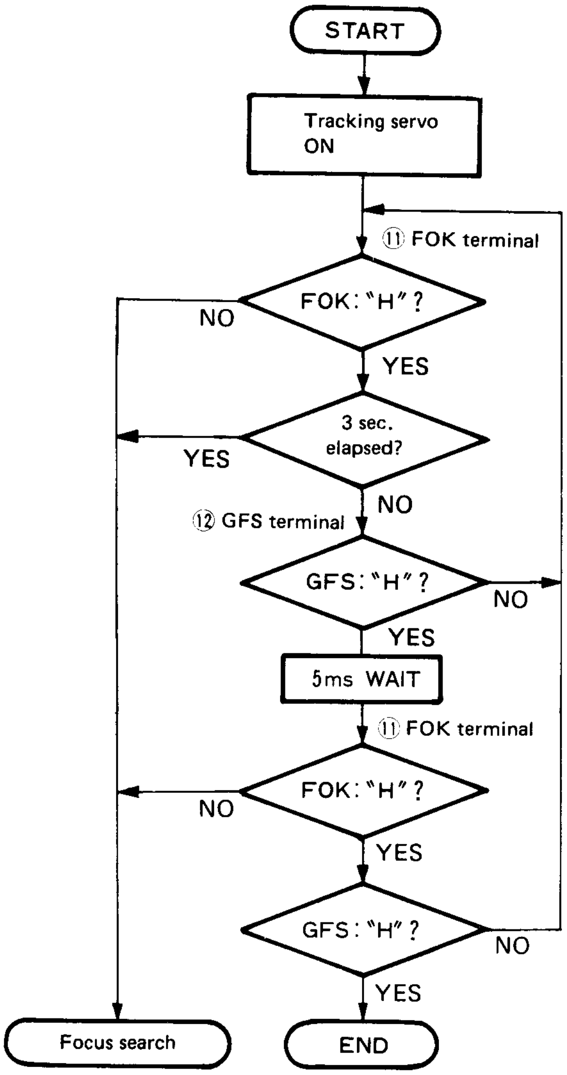
CIRCUIT DESCRIPTION

- **Focus search & focus servo ON**

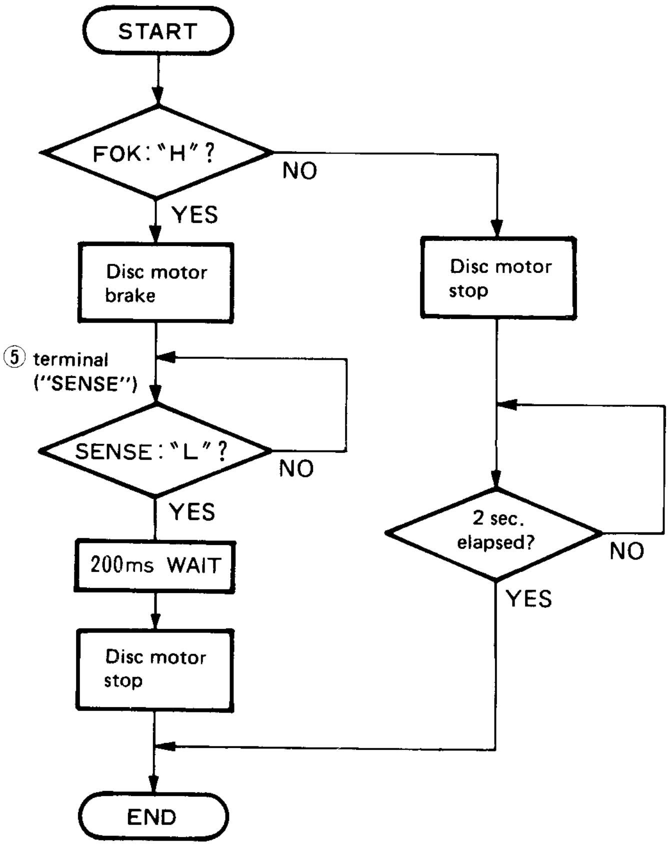

START
Initialization of CXA1244S, CXD1125QZ
Laser ON
Focus DOWN 1 sec.
Focus UP
1.2 sec. elapsed?
YES
NO
SENSE: "H" continues 0.5msec on FOK: "H"?
NO
YES
Focus servo ON
Disc motor ON
END

CIRCUIT DESCRIPTION

- **Tracking servo ON**

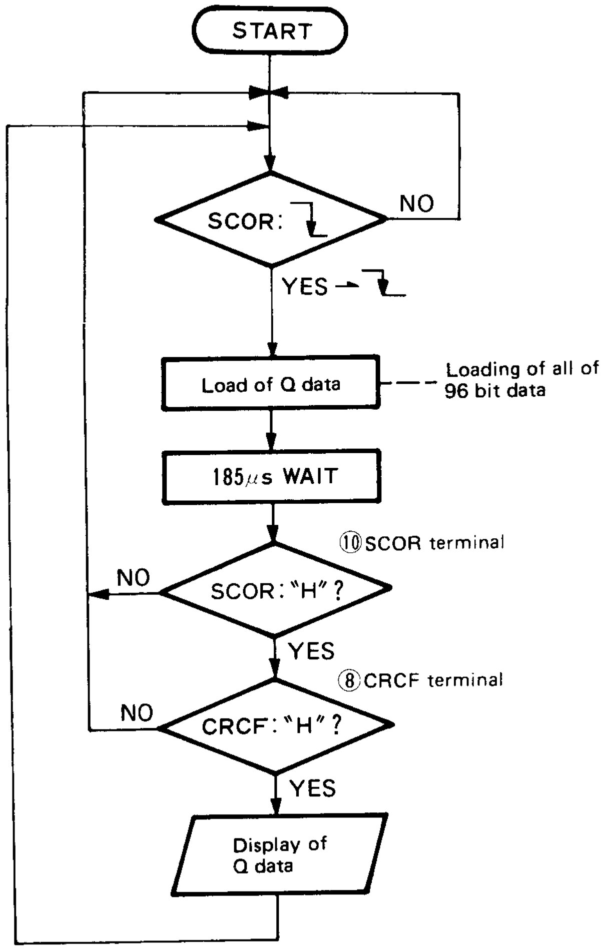

START
Tracking servo ON
⑪ FOK terminal
FOK: "H"?
NO
YES
3 sec. elapsed?
YES
NO
⑫ GFS terminal
GFS: "H"?
NO
YES
5ms WAIT
⑪ FOK terminal
FOK: "H"?
NO
YES
GFS: "H"?
NO
YES
Focus search
END

- **Disc motor STOP**

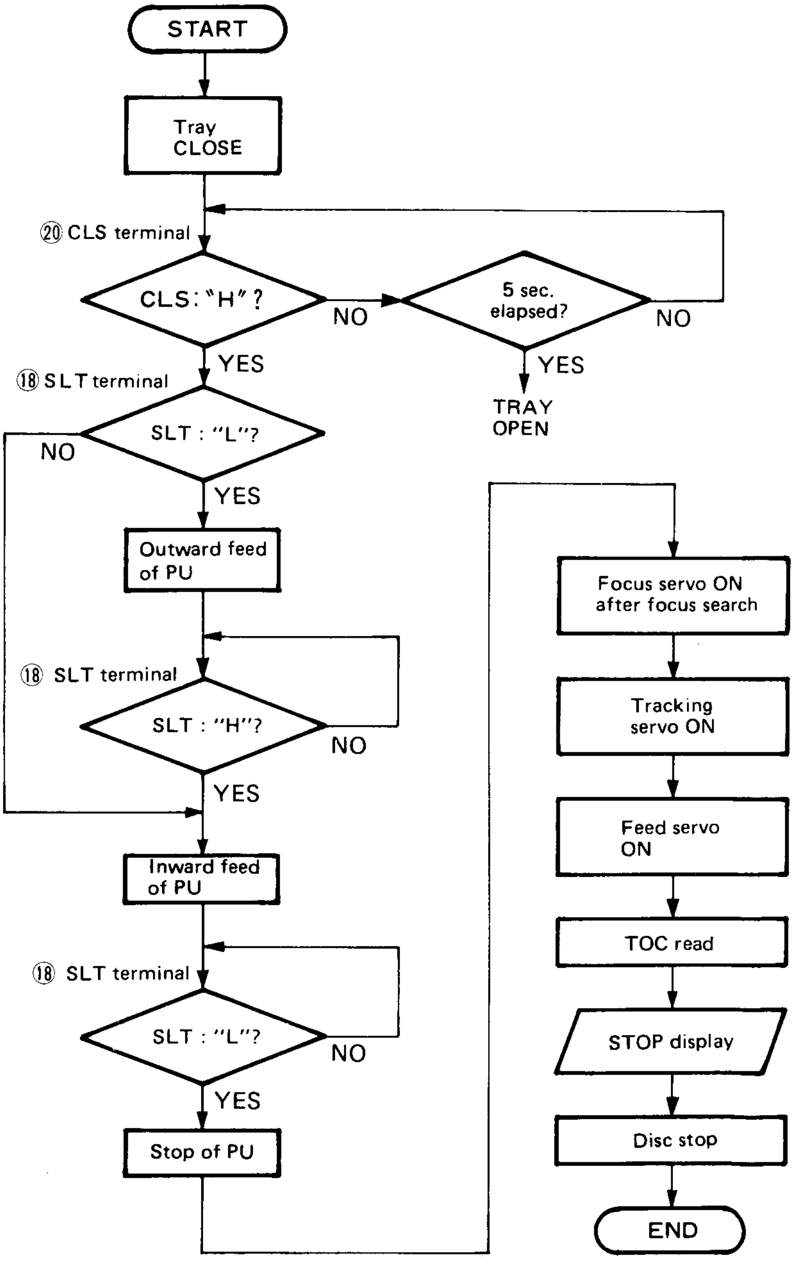

START
FOK: "H"?
NO
YES
Disc motor brake
Disc motor stop
⑤ terminal ("SENSE")
SENSE: "L"?
NO
YES
200ms WAIT
Disc motor stop
2 sec. elapsed?
NO
YES
END

CIRCUIT DESCRIPTION

- **From loading of Q data to display**


START
SCOR:
NO
YES
Load of Q data
Loading of all of 96 bit data
185μs WAIT
⑩SCOR terminal
NO
SCOR: "H"?
YES
⑧CRCF terminal
NO
CRCF: "H"?
YES
Display of Q data

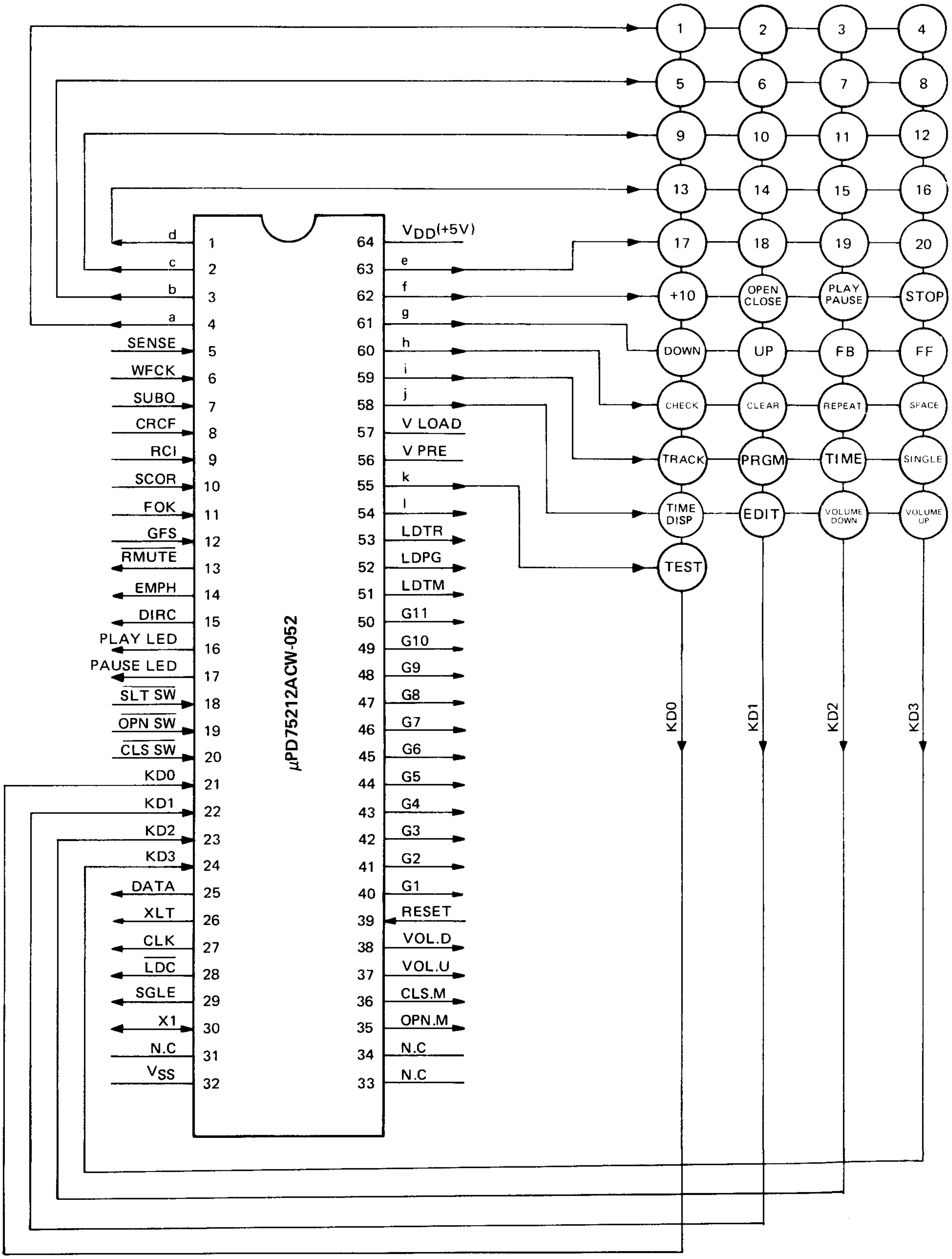
- **In a usual case, since the tray OPEN/CLOSE key was pushed on when the tray is OPEN until STOP display is made.**


START
Tray CLOSE
⑳ CLS terminal
CLS: "H"?
NO
5 sec. elapsed?
NO
YES
TRAY OPEN
YES
⑱ SLT terminal
SLT : "L"?
NO
YES
Outward feed of PU
⑱ SLT terminal
SLT : "H"?
NO
YES
Inward feed of PU
⑱ SLT terminal
SLT : "L"?
NO
YES
Stop of PU
Focus servo ON after focus search
Tracking servo ON
Feed servo ON
TOC read
STOP display
Disc stop
END

CIRCUIT DESCRIPTION

4. Microprocessor μPD75212ACW-052 (X32-136X-XX : IC16) : Japan made
(X32-142X-XX : IC16) : Singapore made

4–1. Terminal connection diagram


μPD75212ACW-052
1 d
2 c
3 b
4 a
5 SENSE
6 WFCK
7 SUBQ
8 CRCF
9 RCI
10 SCOR
11 FOK
12 GFS
13 RMUTE
14 EMPH
15 DIRC
16 PLAY LED
17 PAUSE LED
18 SLT SW
19 OPN SW
20 CLS SW
21 KD0
22 KD1
23 KD2
24 KD3
25 DATA
26 XLT
27 CLK
28 LDC
29 SGLE
30 X1
31 N.C
32 VSS
64 VDD(+5V)
63 e
62 f
61 g
60 h
59 i
58 j
57 V LOAD
56 V PRE
55 k
54 l
53 LDTR
52 LDPG
51 LDTM
50 G11
49 G10
48 G9
47 G8
46 G7
45 G6
44 G5
43 G4
42 G3
41 G2
40 G1
39 RESET
38 VOL.D
37 VOL.U
36 CLS.M
35 OPN.M
34 N.C
33 N.C
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
+10
OPEN CLOSE
PLAY PAUSE
STOP
DOWN
UP
FB
FF
CHECK
CLEAR
REPEAT
SPACE
TRACK
PRGM
TIME
SINGLE
TIME DISP
EDIT
VOLUME DOWN
VOLUME UP
TEST
KD0
KD1
KD2
KD3

CIRCUIT DESCRIPTION

4–2. Explanation of terminals

Pin No.	Pin Name	I/O	Function
1~4	d~a	O	FL segment control pins (Also for key scan signal).
5	SENSE	I	Signal processing, detection pin of signal SENSE from servo IC (FZC, kick pulse, CLV).
6	WFCK	I	Q data read clock pulse input pin.
7	SUBQ	I	Q data input pin.
8	CRCF	I	Q data CRC check result input pin. Input from digital signal processing LSI ("H" : OK).
9	RCI	I	Remote control input pin.
10	SCOR	I	Sub-code frame sync detection signal input pin (In sync : "H").
11	FOK	I	RF amplifier FOK signal input pin.
12	GFS	I	Frame sync signal input pin (In frame sync : "H").
13	$\overline{\text{RMUTE}}$	O	Analog mute control pin (Active "L").
14	EMPH	O	De-emphasis control pin (Active "H").
15	DIRC	O	Servo IC DIRC pin. Direct control pin output (Normally : "H").
16	PLAY LED	O	Play LED drive port.
17	PAUSE LED	O	Pause LED drive port.
18	$\overline{\text{SLTSW}}$	I	Sled limit switch (Innermost : "L").
19	$\overline{\text{OPNSW}}$	I	Tray open switch (At open : "L").
20	$\overline{\text{CLSSW}}$	I	Tray close switch (At close : "L").
21~24	KD0~KD3	I	Key matrix key return input pins.
25	DATA	O	Signal processing, servo IC control output pin.
26	XLT	O	Signal processing, servo IC control output pin (latch).
27	CLK	O	Signal processing, servo IC control output pin (clock pulse).
28	$\overline{\text{LDC}}$	O	Laser ON/OFF signal output pin (Active "L").
29	SGLE	O	Signal mode lamp drive port.
30	X1	I/O	System clock pulse I/O pin.
31	–	–	Unused.
32	Vss	–	GND.
33,34	–	–	Unused.
35	OPNM	O	Tray motor OPEN output pin.
36	CLSM	O	Tray motor CLOSE output pin.
37	VOL. UP	O	Volume UP output pin (for motor VR).
38	VOL. DOWN	O	Volume DOWN output pin (for motor VR).
39	$\overline{\text{RESET}}$	I	Reset input pin.
40~50	G1~G11	O	FL digit control output pins.
51	LDTM	O	Time mode LED drive port.
52	LDPG	O	Program mode LED drive port.
53	LDTR	O	Track mode LED drive port.
54,55	l,k	O	FL segment control pins (also for key scan).
56	VPRE	–	FL predriver power supply.
57	VLOAD	–	FL driver negative power supply (–30V).
58~63	j~e	O	FL segment control output pins (also for key scan).
64	VDD	–	Power supply (+5V).

CIRCUIT DESCRIPTION

5. RF AMP. CXA1081M (X29-1890-05 : IC1) : Japan made
(X29-1890-06 : IC1) : Singapore made

General

The CXA1081M is an IC developed for use in Compact Disc players. It incorporates a 3-spot optical pickup RF output amplifier, a focusing error amplifier, a tracking error amplifier, and other signal processing circuitry, such as focus OK, mirror, defect, and EFM comparator circuits, as well as a laser diode APC (Automatic Power Control) circuit.

Features

- Operates on a signal +5 V power supply, as well as on a ±5 V dual-voltage power supply.
- Low power consumption (100 mW with ±5 V, 50 mW with +5 V).
- An APC circuit which accepts either a P-sub or N-sub laser diode.
- A minimum of external parts required.
- A disc defect detector circuit for improved playability.

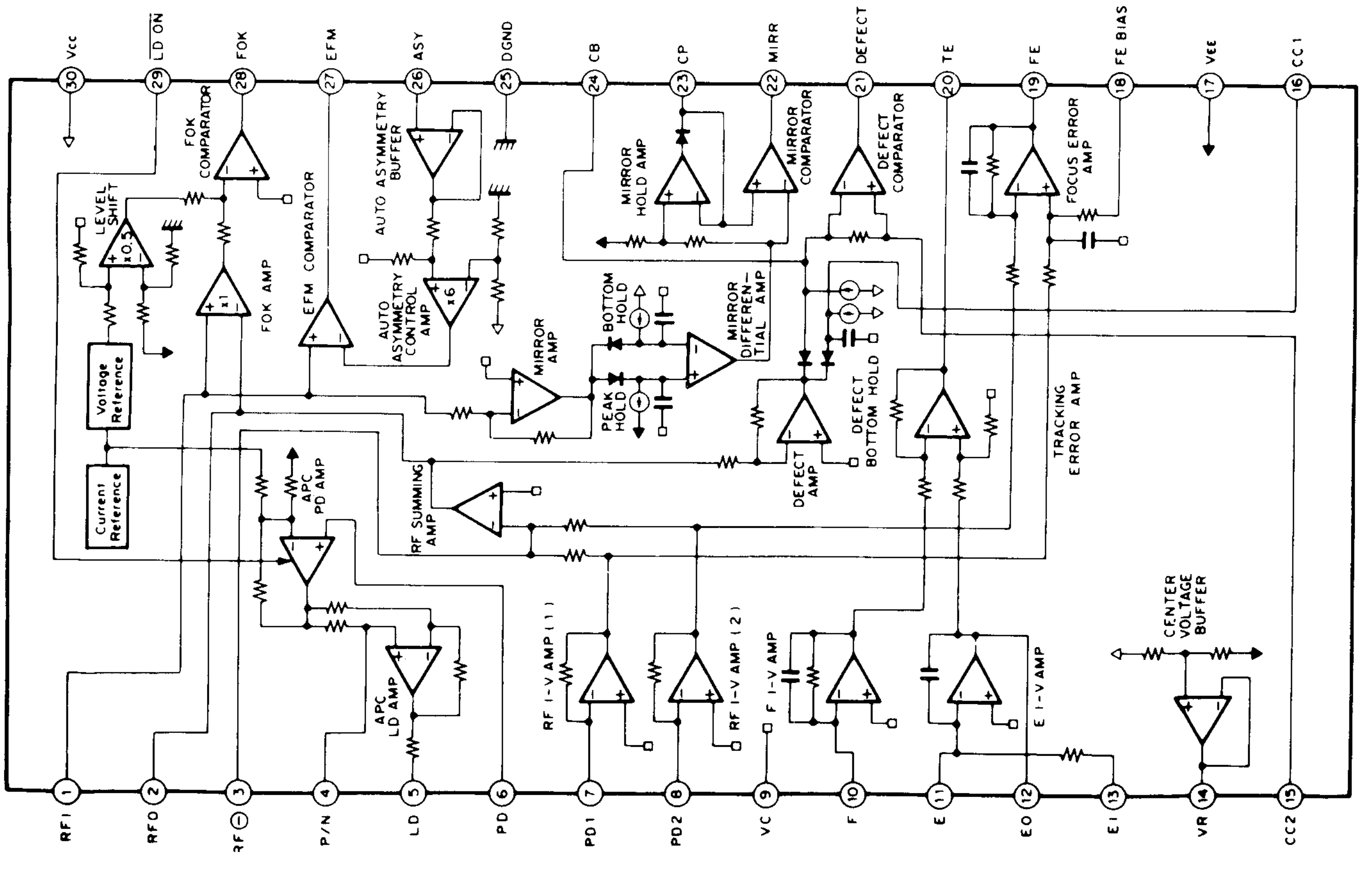
Structure

Bipolar silicon monolithic IC

Functions

- RF amplifier
- Focus OK detector circuit
- Mirror detector circuit
- Tracking error amplifier
- Defect detector circuit
- APC circuit
- EFM comparator
- Auto asymmetry control amplifier

5-1. Block diagram


VCC 30
LD ON 29
FOK 28
EFM 27
ASY 26
DGND 25
CB 24
CP 23
MIRR 22
DEFECT 21
TE 20
FE 19
FE BIAS 18
VEE 17
CC1 16
FOK COMPARATOR
LEVEL SHIFT
x0.5
FOK AMP
x1
Voltage Reference
Current Reference
EFM COMPARATOR
AUTO ASYMMETRY BUFFER
AUTO ASYMMETRY CONTROL AMP
x6
MIRROR AMP
BOTTOM HOLD
PEAK HOLD
MIRROR HOLD AMP
MIRROR COMPARATOR
MIRROR DIFFERENTIAL AMP
DEFECT COMPARATOR
DEFECT BOTTOM HOLD
DEFECT AMP
FOCUS ERROR AMP
TRACKING ERROR AMP
APC PD AMP
APC LD AMP
RF SUMMING AMP
RF I-V AMP (1)
RF I-V AMP (2)
F I-V AMP
E I-V AMP
CENTER VOLTAGE BUFFER
1 RFI
2 RFO
3 RF−
4 P/N
5 LD
6 PD
7 PD1
8 PD2
9 VC
10 F
11 E
12 EO
13 EI
14 VR
15 CC2

CIRCUIT DESCRIPTION

5–2. Explanation of terminals (V_{CC} = 2.5V, V_{EE} = DGND = –2.5V, VC = GND)

Terminal No.	Terminal name	I/O	DC voltage (V)	Function
1	RFI	I	0	Input pin for the C-coupled signal output from the RF summing amplifier.
2	RFO	O	V_{RFO}	RF summing amplifier output pin. Used as the check point for the eye pattern.
3	RF⊖	I	0	RF summing amplifier feedback input pin.
4	P/N	I	0 (VC)	P-sub/N-sub select pin for the LD (Laser Diode). (DC voltage: in N-sub mode)
5	LD	O	−1.8	*APC LD amplifier output pin. (DC voltage: PD open in N-sub mode)
6	PD	I	0	*APC LD amplifier input pin. (DC voltage: open)
7	PD1	I	0	RF I-V amplifier (1) inverted input pin. Current input by connecting to the photodiode A + C terminal.
8	PD2	I	0	RF I-V amplifier (2) inverted input pin. Current input by connecting to the photodiode B + D terminal.
9	VC	—	0	Connected to GND when using a positive (+)/negative (−) dual-voltage power supply. Connected to VR (pin 14) when using a single-voltage power supply.
10	F	I	0	F I-V amplifier inverted input pin. Current input by connecting to the photodiode F terminal.
11	E	I	0	E I-V amplifier inverted input pin. Current input by connecting to the photodiode E terminal.
12	EO	O	0	E I-V amplifier output pin.
13	EI	I	0	E I-V amplifier feedback input pin. For E I-V amplifier gain adjustment.
14	VR	O	V_{CVO}	DC voltage output pin of $(V_{CC} + V_{EE})/2$.
15	CC2	I	1.0	Input pin for the C-coupled signal output from the defect bottom hold.
16	CC1	O	1.2	Defect bottom hold output pin.
17	V_{EE}	—	−2.5	Connected to the negative power supply when using a positive (+)/negative (−) dual-voltage power supply. Connected to GND when using a single-voltage power supply.
18	FE BIAS	I	0	Bias pin on the focus error amplifier non-inverted side. For CMR adjustment of the focus error amplifier.
19	FE	O	V_{FEO}	Focus error amplifier output pin.
20	TE	O	V_{TEO}	Tracking error amplifier output pin.
21	DEFECT	O	V_{DFCTL}	Defect comparator output pin. (DC voltage: connected to a 10 k-ohm load)
22	MIRR	O	V_{MIRL}	Mirror comparator output pin. (DC voltage: connected to a 10 k-ohm load).
23	CP	I	−1.3	Mirror hold capacitor output pin. Mirror comparator non-inverted input.
24	CB	I	0	Defect bottom hold capacitor connect pin.
25	DGND	—	−2.5	Connected to GND when using a positive (+)/negative (−) dual-voltage power supply. Connected to GND (V_{EE}) when using a single-voltage power supply.
26	ASY	I	—	Auto asymmetry control input pin.
27	EFM	O	V_{EFMH}	EFM comparator output pin. (DC voltage: connected to a 10 k-ohm load).
28	FOK	O	V_{FOKL}	FOK comparator output pin. (DC voltage: connected to a 10 k-ohm load)
29	LD ON	I	−2.5 (DGND)	LD ON/OFF select pin. (DC voltage: when LD ON)
30	V_{CC}	—	2.5	Positive power supply.

*APC: Automatic Power Control

CIRCUIT DESCRIPTION

6. Servo control CXA1244S (X32-136X-XX : IC10) : Japan made
(X32-142X-XX : IC10) : Singapore made

CXA1244S is a bipolar IC developed for servo of compact disc (CD) players, and it provides the following functions.

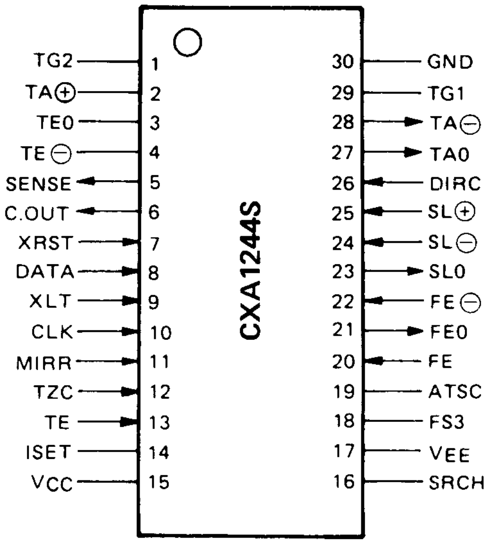
○Focus control (search ON/OFF, gain control)

○Tracking control (servo ON/OFF, single track jump, multiple track jump, gain control, phase compensation control, brake circuit)

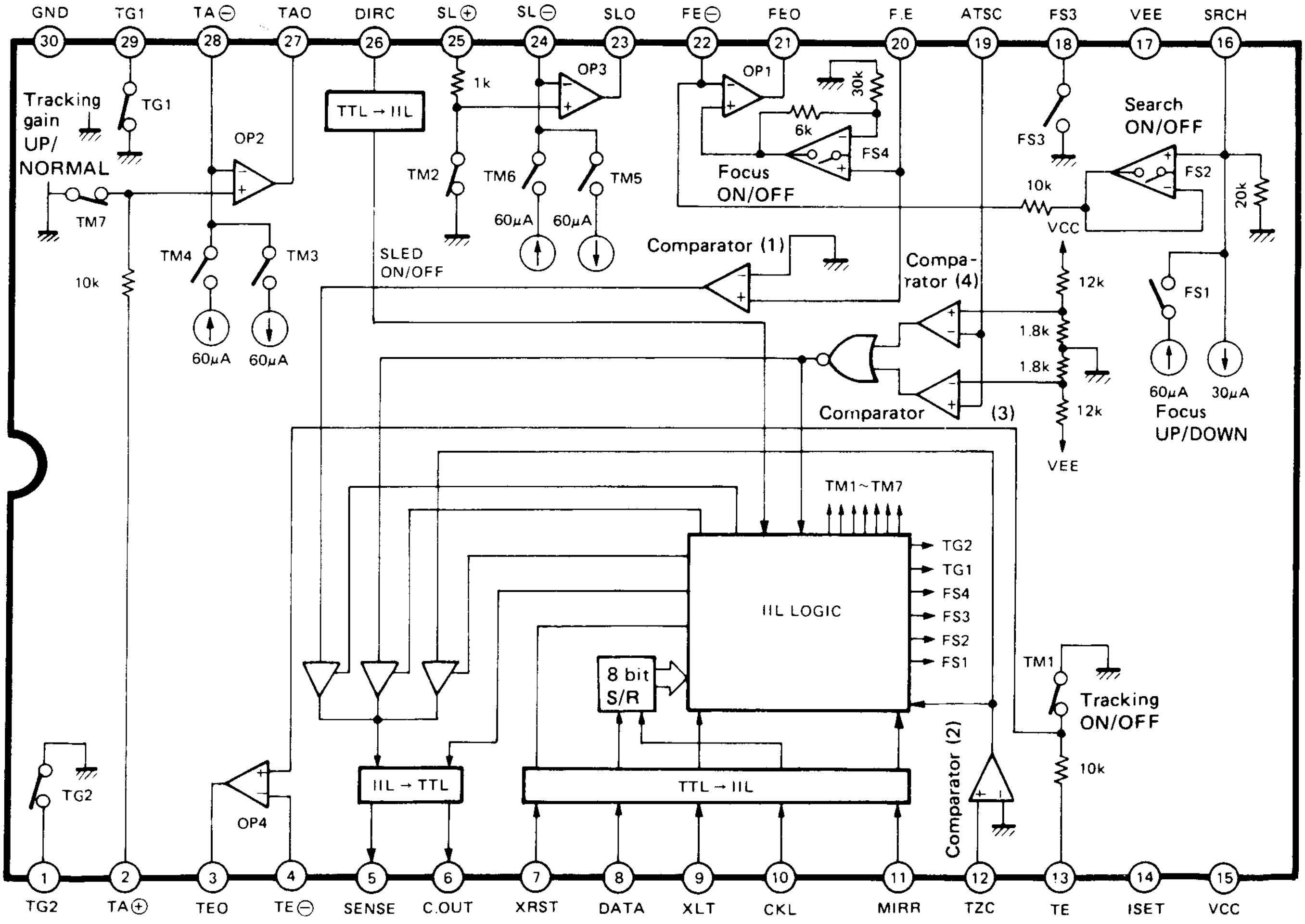
○ Sled control (servo ON/OFF, fast forward, fast reverse)

Servo function of each of focus, tracking and sled as well as random access operation are realized through control by microcomputer. Furthermore, the serial data bus can be shared with CXD1125QZ.

6–1. Terminal connection diagram


CXA1244S
TG2 1
TA⊕ 2
TEO 3
TE⊖ 4
SENSE 5
C.OUT 6
XRST 7
DATA 8
XLT 9
CLK 10
MIRR 11
TZC 12
TE 13
ISET 14
VCC 15
30 GND
29 TG1
28 TA⊖
27 TAO
26 DIRC
25 SL⊕
24 SL⊖
23 SLO
22 FE⊖
21 FEO
20 FE
19 ATSC
18 FS3
17 VEE
16 SRCH

6–2. Block diagram


GND 30
TG1 29
TA⊖ 28
TAO 27
DIRC 26
SL⊕ 25
SL⊖ 24
SLO 23
FE⊖ 22
FEO 21
F.E 20
ATSC 19
FS3 18
VEE 17
SRCH 16
Tracking gain UP/NORMAL
TG1
TM7
OP2
10k
TM4
TM3
60μA
60μA
TTL→IIL
1k
OP3
TM2
TM6
TM5
60μA
60μA
SLED ON/OFF
OP1
30k
6k
FS4
Focus ON/OFF
Comparator (1)
Compa-rator (4)
FS3
Search ON/OFF
FS2
10k
VCC
20k
12k
1.8k
1.8k
12k
VEE
FS1
60μA
30μA
Focus UP/DOWN
Comparator (3)
TM1~TM7
IIL LOGIC
TG2
TG1
FS4
FS3
FS2
FS1
8 bit S/R
TM1
Tracking ON/OFF
10k
Comparator (2)
TG2
OP4
IIL→TTL
TTL→IIL
1 TG2
2 TA⊕
3 TEO
4 TE⊖
5 SENSE
6 C.OUT
7 XRST
8 DATA
9 XLT
10 CKL
11 MIRR
12 TZC
13 TE
14 ISET
15 VCC

CIRCUIT DESCRIPTION

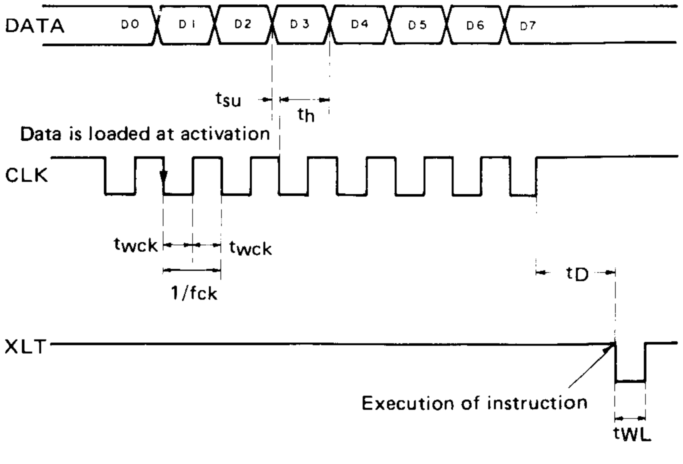
6–3. Explanation of terminals

Terminal No.	Terminal name	I/O	Functions
1	TG2		Tracking amplifier gain switching terminal. GND level.
2	TA ⊕		Non-inverted input of operational amplifier 2.
3	TE0		Output of operational amplifier 4.
4	TE ⊖	O	Inverted input of operational amplifier 4.
5	SENSE	O	Output of SSP internal status that corresponds to ADDRESS of CPU → SSP. (Changes in accordance with ADDRESS content of internal serial register.) See Note 1.
6	C. OUT	O	Signal output for counting number of tracks at the time of high speed access.
7	XRST	I	All internal registers are cleared when CPU → SSP "L". Connected with CPU RESET. See Note 2.
8	DATA	I	Serial data transmission of CPU → SSP. Input is made from LSB. D0~D7.
9	XLT	I	Latch of serial data of CPU → SSP. (The contents of internal serial register are transmitted to each address decoded latch.) Transmission at "L". Change to "H" occurs immediately after execution because no edge trigger is produced.
10	CLK	I	CPU → SSP serial data transmission clock. Data is read at falling. "H" level before and after transmission.
11	MIRR	I	Mirror signal input from RF amplifier.
12	TZC	I	Tracking error signal is input with C couple. The time constant is determined by one single track jump, but it is usually around 2kHz.
13	TE	I	Tracking error signal input.
14	ISET		Setting of current level for determining focus search voltage, tracking jump voltage and sled feed voltage.
15	Vcc		Power supply terminal. Normally −5V.
16	SRCH		The capacitor for determining the time constant of charge/discharge waveform for focus search is connected.
17	VEE		Power supply terminal. Normally −5V.
18	FS3		Focus amplifier gain switching terminal. GND level.
19	ATSC		Such information that a mechanical shock was applied to the player is input. Simply, a trakcing error is input through B.P.F.
20	FE	I	Input of focus error signal.
21	FE0	O	Output of operational amplifier 1.
22	FE ⊖	I	Inverted input of operational amplifier 1.
23	SL0	O	Output of operational output 3.
24	SL ⊖	I	Inverted input of operational amplifier 3.
25	SL ⊕	I	Non-inverted input of operational amplifier 3.
26	DIRC	I	Used at the time of one track jump. Normally "H". The direction of the track jump pulse is reversed with "L". Setting is made in the normal tracking mode by changing to "H". "L" for a fixed length of time with detection of activation, deactivation of TZC.
27	TA0	O	Output of operational amplifier 2.
28	TA ⊖	O	Inverted input of operational amplifier 2.
29	TG1		Tracking amplifier gain switching terminal. GND level.
30	GND		GND terminal of IC.

Note 1 : SENSE terminal output

Serial data upper 4 bits	ADDRESS content	SENSE terminal output	Explanation
0 0 0 0	FOCUS CONTROL	FZC	"H" when focus zero cross, Focus erro voltage is 0V or higher. Used at the time of FOCUS PULL operation.
0 0 0 1	TRACKING CONTROL	AS	"H" when the ATSC input level exceeds the wind comparator level ($V_{TH} = \pm V_{cc} \times 13\%$). But this is not used in this equipment.
0 0 1 0	TRACKING MODE	TZC	Judgement output of positive or negative of tracking zero cross, tracking error. When used at the time of single track jump, DIRC is reduced to "L" on detection of TZC ↑, in FWD JUMP or on detection of TZC ↓ in REV JUMP.

Note 2 : Digital unit timing chart



CIRCUIT DESCRIPTION

6–4. System control

COMMAND	ADDRESS				DATA				SENSE
	D7	D6	D5	D4	D3	D2	D1	D0	
FOCUS CONTROL	0	0	0	0	FS4 FOCUS ON	FS3 GAIN DOWN	FS2 SEARCH ON	FS1 SEARCH UP	FZC
TRACKING CONTROL	0	0	0	1	ANTI SHOCK	BREAK ON	TG2 GAIN	TG1* SET	AS
TRACKING MODE	0	0	1	0	TRACKING* MODE		SLED* MODE		TZC

GAIN SET* TG1, TG2 may be set independently.
In the case of ANTI SHOCK = 1 (00011XXX), both TG1, TG2 are inverted when ANTI SCHOCK = "H".

SLED MODE*

	D1	D0
OFF	0	0
SERVO ON	0	1
FWD MOVE	1	0
REV MOVE	1	1

TRACKING MODE*

	D3	D2
OFF	0	0
SERVO ON	0	1
FWD JUMP	1	0
REV JUMP	1	1

CIRCUIT DESCRIPTION

7. Digital signal processor CXD1125QZ (X32-136X-XX : IC20) : Japan made (X32-142X-XX : IC20) : Singapore made

General

The CXD1125QZ is a digital processing LSI for a Compact Disc player, and has the following functions.

1. Bit clock reproduction by an EFM-PLL circuit
2. EFM data demodulation
3. Frame sync signal detection, protection and insertion
4. Powerful error detection and correction
5. Interpolation with an average value, or by holding the previous value
6. Demodulation of a sub code signal, error detection of a sub code Q
7. Spindle motor CLV servo
8. 8-bit tracking counter
9. CPU interface with a serial bus
10. Sub code Q register
11. Digital filter
12. Digital audio interface output

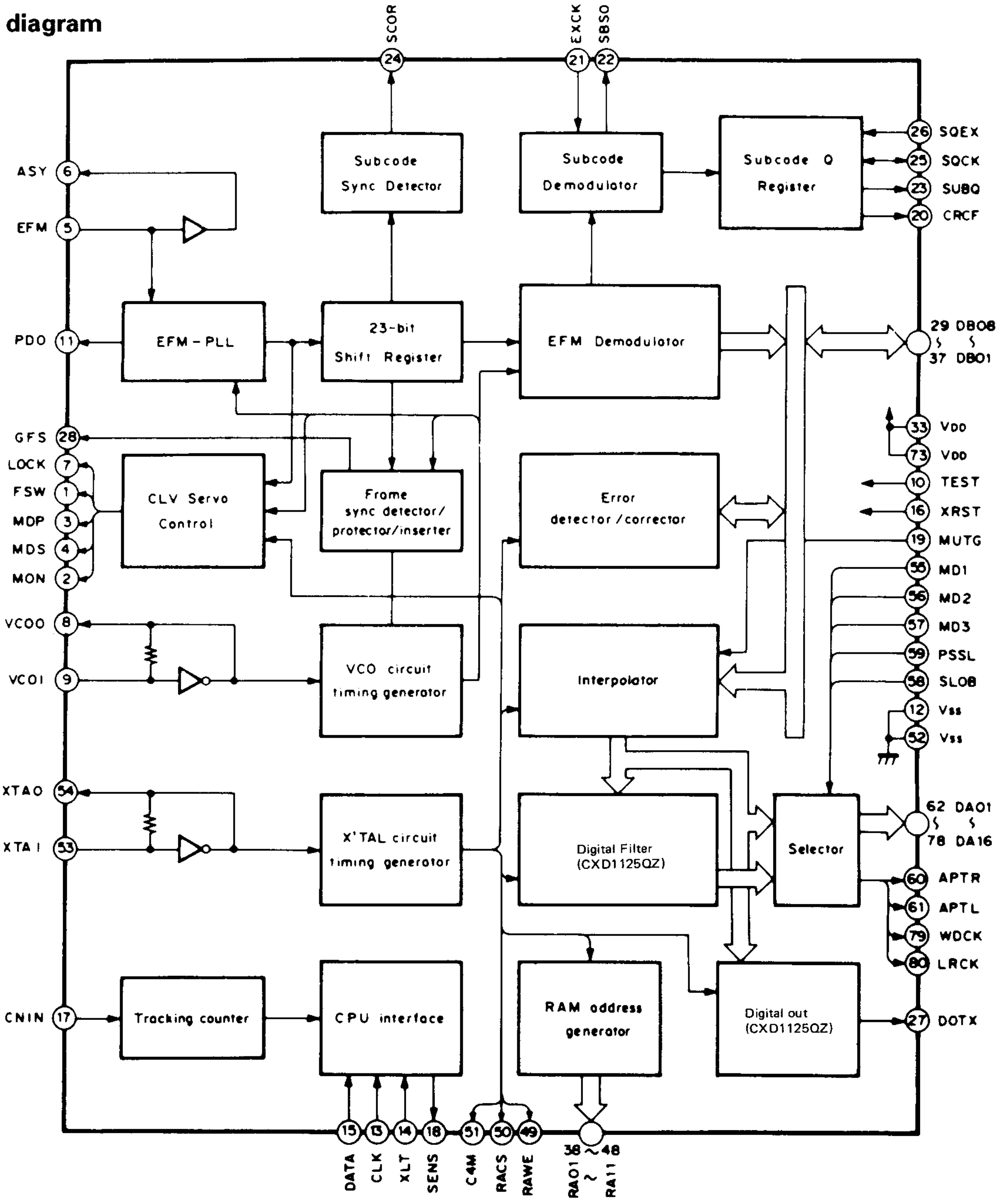
Features

- All digital signals used in playback can be processed using only a single chip.
- An aperture-correction digital filter is built in.

Structure

CMOS IC

7–1. Block diagram


SCOR
24
EXCK
SBSO
21
22
Subcode Sync Detector
Subcode Demodulator
Subcode Q Register
26 SQEX
25 SQCK
23 SUBQ
20 CRCF
ASY 6
EFM 5
PDO 11
EFM - PLL
23-bit Shift Register
EFM Demodulator
29 DB08
37 DB01
GFS 28
LOCK 7
FSW 1
MDP 3
MDS 4
MON 2
CLV Servo Control
Frame sync detector/ protector/inserter
Error detector /corrector
33 VDD
73 VDD
10 TEST
16 XRST
19 MUTG
55 MD1
56 MD2
57 MD3
59 PSSL
58 SLOB
12 Vss
52 Vss
VCOO 8
VCOI 9
VCO circuit timing generator
Interpolator
XTAO 54
XTA I 53
X'TAL circuit timing generator
Digital Filter (CXD1125QZ)
Selector
62 DA01
78 DA16
60 APTR
61 APTL
79 WDCK
80 LRCK
CNIN 17
Tracking counter
CPU interface
RAM address generator
Digital out (CXD1125QZ)
27 DOTX
15
13
14
18
51
50
49
DATA
CLK
XLT
SENS
C4M
RACS
RAWE
38～48
RA01 ～ RA11

CIRCUIT DESCRIPTION

7-2. Explanation of terminals

Terminal No.	Terminal name	I/O	Function
1	FSW	O	Time constant switching output of output filter of spindle motor
2	MON	O	ON/OFF control output of spindle motor.
3	MDP	O	Drive output of spindle motor. Rough speed control in CLV-S mode and phase control in CLV-P mode
4	MDS	O	Drive output of spindle motor. Speed control in CLV-P mode.
5	EFM	I	EFM signal input from RF amplifier.
6	ASY	O	Output for controlling the slice level of EFM signal.
7	LOCK	O	Samples the GFS signal with WFCK/16, and outputs "H" when the level is high When it is "L" for eight times, in arrow, outputs "L".
8	VCOO	O	VCO output. f = 8.6436 MHz when locked to EFM signal
9	VCOI	I	VCO input.
10	TEST	I	(0 V)
11	PDO	O	Phase comparison output of EFM signal and VCO/2
12	V_{SS}	—	GND (0 V)
13	CLK	I	Serial data transmission clock input from CPU. Data is latched at rising edge of a clock
14	XLT	I	Latch input from CPU. Data (serial data from CPU) from the 8 bit shift register is latched in each register
15	DATA	I	Serial data input from CPU.
16	XRST	I	System reset input. Reset at "L".
17	CNIN	I	Input of tracking pulse.
18	SENS	O	Output of internal status in correspondence to the address.
19	MUTG	I	Muting input. In the case when ATTM of internal register A is "L". Normal status when MUTG is "L" or soundless state when it is "H".
20	CRCF	O	Output of result of CRC check of sub code Q.
21	EXCK	I	Clock input for sub code serial output.
22	SBSO	O	Sub code serial output.
23	SUBQ	O	Sub code Q output.
24	SCOR	O	Sub code sync S0 + S1 output.
25	SQCK	I/O	Sub code Q read-off clock.
26	SQEX	I	SQCK select input.
27	DOTX	O	DIGITAL OUT output. (Outputs the $\overline{\text{WFCK}}$ signal when CXD1130Q or D0 is off)
28	GFS	O	Display output of frame sync lock status.
29	DB08	I/O	Data pin of external RAM. DATA8 (MSB)
30	DB07	I/O	Data pin of external RAM. DATA7
31	DB06	I/O	Data pin of external RAM. DATA6
32	DB05	I/O	Data pin of external RAM. DATA5
33	V_{DD}	—	Power supply (+5 V)
34	DB04	I/O	Data pin of external RAM. DATA4
35	DB03	I/O	Data pin of external RAM. DATA3
36	DB02	I/O	Data pin of external RAM. DATA2
37	DB01	I/O	Data pin of external RAM. DATA1 (LSB)
38	RA01	O	Address output of external RAM. ADDR01 (LSB)
39	RA02	O	Address output of external RAM. ADDR02
40	RA03	O	Address output of external RAM. ADDR03
41	RA04	O	Address output of external RAM. ADDR04
42	RA05	O	Address output of external RAM. ADDR05
43	RA06	O	Address output of external RAM. ADDR06

CIRCUIT DESCRIPTION

Terminal No.	Terminal name	I/O	Function
44	RA07	O	Address output of external RAM. ADDR07
45	RA08	O	Address output of external RAM. ADDR08
46	RA09	O	Address output of external RAM. ADDR09
47	RA10	O	Address output of external RAM. ADDR10
48	RA11	O	Address output of external RAM. ADDR11 (MSB)
49	RAWE	O	Write Enable signal output to external RAM. (Active at "L").
50	RACS	O	Chip select signal output to external RAM. (Active at "L").
51	C4M	O	Crystal dividing output. f = 4.2336 MHz.
52	Vss	—	GND (0 V).
53	XTAI	I	Crystal oscillator input. f = 8.4672 MHz or 16.9344 MHz depending on the mode selected.
54	XTAO	O	Crystal oscillator output. f = 8.4672 MHz or 16.9344 MHz depending on the mode selected.
55	MD1	I	Mode select input 1.
56	MD2	I	Mode select input 2.
57	MD3	I	Mode select input 3.
58	SLOB	I	Audio data output code select input. 2's complement output when "L", offset binary output when "H".
59	PSSL	I	Audio data output mode select input. Serial output when "L", parallel output when "H"
60	APTR	O	Aperture compensation control output. "H" when R-ch.
61	APTL	O	Aperture compensation control output. "H" when L-ch.
62	DA01	O	DA01 (parallel audio data LSB) output when PSSL = "H", C1F1 output when PSSL = "L".
63	DA02	O	DA02 output when PSSL = "H", C1F2 output when PSSL = "L".
64	DA03	O	DA03 output when PSSL = "H", C2F1 output when PSSL = "L".
65	DA04	O	DA04 output when PSSL = "H", C2F2 output when PSSL = "L".
66	DA05	O	DA05 output when PSSL = "H", C2FL output when PSSL = "L".
67	DA06	O	DA06 output when PSSL = "H", C2PO output when PSSL = "L".
68	DA07	O	DA07 output when PSSL = "H", RFCK output when PSSL = "L".
69	DA08	O	DA08 output when PSSL = "H", WFCK output when PSSL = "L".
70	DA09	O	DA09 output when PSSL = "H", $\overline{\text{PLCK}}$ output when PSSL = "L".
71	DA10	O	DA10 output when PSSL = "H", UGFS output when PSSL = "L".
72	DA11	O	DA11 output when PSSL = "H", GTOP output when PSSL = "L".
73	VDD	—	Power supply (+5 V).
74	DA12	O	DA12 output when PSSL = "H", RAOV output when PSSL = "L".
75	DA13	O	DA13 output when PSSL = "H", C4LR output when PSSL = "L".
76	DA14	O	DA14 output when PSSL = "H", $\overline{\text{C210}}$ output when PSSL = "L".
77	DA15	O	DA15 output when PSSL = "H", C210 output when PSSL = "L".
78	DA16	O	DA16 (parallel audio data MSB) output when PSSL = "H", DATA output when PSSL = "L".
79	WDCK	O	Strobe signal output. 176.4 kHz when DF is ON, 88.2 kHz with CXD1125Q or when DF is OFF.
80	LRCK	O	Strobe signal output. 88.2 kHz when DF is ON, 44.1 kHz with CXD1125Q or when DF is OFF.

Notes:

C1F1 :
C1F2 : Error correction status monitor output for C1 decode.
C2F1 :
C2F2 : Error correction status monitor output for C2 decode.
C2FL : Correction status output. Goes "H" when the currently corrected C2 series data cannot be corrected.
C2PO : C2 pointer signal. Synchronized to the audio data output.
RFCK : Read frame clock output. 7.35 MHz when locked to the crystal line.
WFCK: Write frame clock output. 7.35 MHz when locked to the crystal line.
$\overline{\text{PLCK}}$: VCO/2 output. f = 4.3218 MHz when locked to the EFM signal.
UGFS : Non-protected frame sync pattern output.
GTOP : Frame sync protect status display output.
RAOV : ±4 frame jitter absorption RAM overflow and underflow display output.
C4LR : Strobe signal. 352.8 kHz when DF is ON, 176.4 kHz with CXD1125Q or when DF is OFF.
$\overline{\text{C210}}$: C210 invert output.
C210 : Bit clock output. 4.2336 MHz when DF is ON, 2.1168 MHz with CXD1125Q or when DF is OFF.
DATA : Audio signal serial data output.

CIRCUIT DESCRIPTION

8. 8x over-sampling digital filter SM5813AP (X32-136X-XX : IC14) : Japan made
(X32-142X-XX : IC14) : Singapore made

8–1. Function

- 2-channel processing
- 8x over-sampling (interpolation) filter (hereinafter referred to as 8fs for short)
- Serial input data
  2's complement, MSB first
  16-bit
- Serial output data
  MSB first
  2's complement/COB selectable
  Selectable between 16-, 18- and 20-bit
- Jitter-free
  Prevents any faulty operation due to the jitter of the input clock signal, thus eliminating the jitter transmission over to the output.
- System clock pulse
  Selectable from 192fs, 256fs, 384fs and 512fs
- Crystal oscillation circuit incorporated
- I/O TTL compatible
- 5 V single power supply
- 28-pin plastic DIP

8–2. Filter configuration

- Interpolation filter
  Linear phase FIR filter 3-stage configuration
    First stage (fs — 2fs), 153rd
    Second stage (2fs — 4fs), 29th
    Third stage (4fs — 8fs), 17th
- 22-bit filter coefficient, 20x22 bit parallel multiplier/25-bit accumulator high-accuracy operation
- Overflow limiter incorporated

8–3. Applications

- CD playback
- DAT playback
- PCM playback

8–4. Filter characteristics

Characteristic item	Performance
Pass band	0 ~ 0.4535fs
Reject band	0.5465fs ~ 7.4535fs
Pass band ripple	Within ±0.00005dB
Reject band attenuation	More than 110dB
Group delay time	Fixed

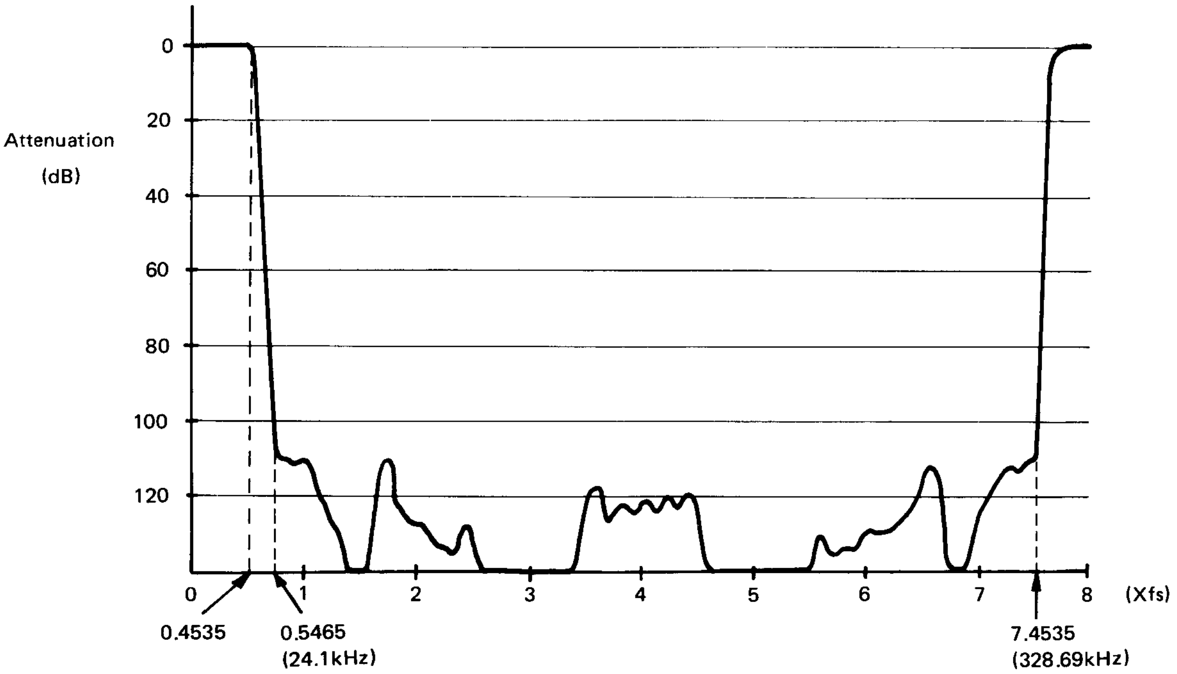
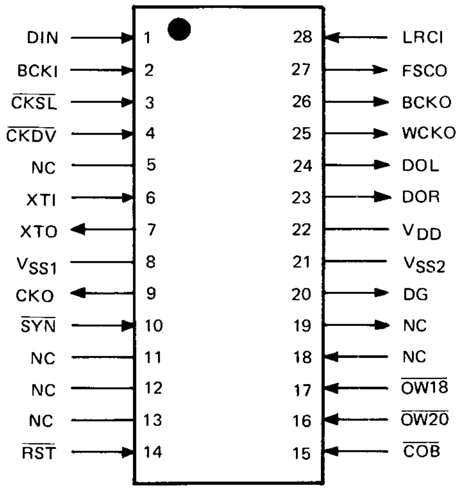


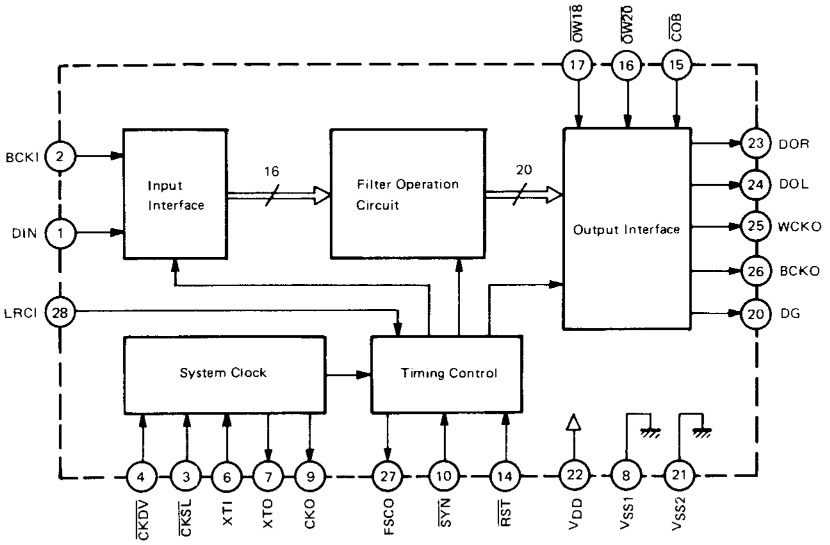
Fig. 8–1 Frequency response

CIRCUIT DESCRIPTION

8–5. Terminal connection diagram


DIN
BCKI
$\overline{\text{CKSL}}$
$\overline{\text{CKDV}}$
NC
XTI
XTO
V_{SS1}
CKO
$\overline{\text{SYN}}$
NC
NC
NC
$\overline{\text{RST}}$
1
2
3
4
5
6
7
8
9
10
11
12
13
14
28
27
26
25
24
23
22
21
20
19
18
17
16
15
LRCI
FSCO
BCKO
WCKO
DOL
DOR
V_{DD}
V_{SS2}
DG
NC
NC
$\overline{\text{OW18}}$
$\overline{\text{OW20}}$
$\overline{\text{COB}}$

8–6. Block diagram


$\overline{\text{OW18}}$
$\overline{\text{OW20}}$
$\overline{\text{COB}}$
17
16
15
BCKI
2
DIN
1
LRCI
28
Input Interface
16
Filter Operation Circuit
20
Output Interface
23
DOR
24
DOL
25
WCKO
26
BCKO
20
DG
System Clock
Timing Control
4
3
6
7
9
27
10
14
22
8
21
$\overline{\text{CKDV}}$
$\overline{\text{CKSL}}$
XTI
XTO
CKO
FSCO
$\overline{\text{SYN}}$
$\overline{\text{RST}}$
V_{DD}
V_{SS1}
V_{SS2}

8–7. Explanation of terminls

"fs" occurring in the description means the sampling frequency of the input data.

<table>
<tr><th>Pin No.</th><th>Pin Name</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>DIN</td><td>I</td><td>Input data.</td></tr>
<tr><td>2</td><td>BCKI</td><td>I</td><td>Input data beat clock pulse.</td></tr>
<tr><td>3,4</td><td>$\overline{\text{CKSL}}$, $\overline{\text{CKDV}}$</td><td>I</td><td>XTI pin input frequency selection. (For details, refer to the description of XTI pin.)</td></tr>
<tr><td>5</td><td>NC</td><td>–</td><td>Unused.</td></tr>
<tr><td>6</td><td>XTI</td><td>I</td><td>Oscillator section input pin.
192 fs : CKSL = "H", CKDV = "H"
256 fs : CKSL = "H", CKDV = "L"
384 fs : CKSL = "L", CKDV = "H"
512 fs : CKSL = "L", CKDV = "L"</td></tr>
<tr><td>7</td><td>XTO</td><td>O</td><td>Oscillator section output pin.</td></tr>
<tr><td>8</td><td>V_{SS1}</td><td>–</td><td>GND1.</td></tr>
<tr><td>9</td><td>CKO</td><td>O</td><td>Oscillator section output clock pulse. (Frequency is the same as in XTI pin.)</td></tr>
<tr><td>10</td><td>$\overline{\text{SYN}}$</td><td>I</td><td>Jitter-free mode/compulsory sync mode selection. ("H : Jitter-free mode, "L" : Compulsory sync mode)</td></tr>
<tr><td>11~13</td><td>NC</td><td>–</td><td>Unused.</td></tr>
<tr><td>14</td><td>$\overline{\text{RST}}$</td><td>I</td><td>System reset. ("H" : normal operation, "L" : system reset)</td></tr>
<tr><td>15</td><td>$\overline{\text{COB}}$</td><td>I</td><td>2's complement/COB selection. ("H" : 2's complement, "L" : $\overline{\text{COB}}$)</td></tr>
<tr><td>16,17</td><td>$\overline{\text{OW20}}$, $\overline{\text{OW18}}$</td><td>I</td><td>Number-of-output-bits selection.
<table>
<tr><td>No. of output bits</td><td>16</td><td>18</td><td>20</td></tr>
<tr><td>$\overline{\text{OW18}}$</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>$\overline{\text{OW20}}$</td><td>H</td><td>H</td><td>L</td></tr>
</table></td></tr>
<tr><td>18,19</td><td>NC</td><td>–</td><td>Unused.</td></tr>
<tr><td>20</td><td>DG</td><td>O</td><td>Deglitch control clock pulse.</td></tr>
<tr><td>21</td><td>V_{SS2}</td><td>–</td><td>GND2.</td></tr>
<tr><td>22</td><td>V_{DD}</td><td>–</td><td>Power supply (+5V).</td></tr>
<tr><td>23</td><td>DOR</td><td>O</td><td>Rch 8x over-sampling output data.</td></tr>
<tr><td>24</td><td>DOL</td><td>O</td><td>Lch 8x over-sampling output data.</td></tr>
<tr><td>25</td><td>WCKO</td><td>O</td><td>Output data word clock pulse.</td></tr>
<tr><td>26</td><td>BCKO</td><td>O</td><td>Output data bit clock pulse.</td></tr>
<tr><td>27</td><td>FSCO</td><td>O</td><td>fs-period internal operation timing clock pulse.</td></tr>
<tr><td>28</td><td>LRCI</td><td>I</td><td>Input data sampling rate (fs) clock pulse. ("H" : Lch, "L" : Rch)</td></tr>
</table>

8–8. Function

• 8x over-sampling (interpolation) filter function

This function works to output the over-sampling data of sampling rate 8fs. In this case, sampling noises between 0.5465fs (24.1kHz) and 7.4535fs (328.69kHz) are removed.

The interpolation operation block configuration of this LSI is of a cascade connection of three 2x interpolation filters (FIR).

• System clock (XTI, XTO, CKO, $\overline{\text{CKSL}}$, $\overline{\text{CKDV}}$)

The system clock pulse can be selected from 192fs, 256fs, 384fs and 512fs. More, operation is feasible even by an external clock (input to pin XTI) or a crystal oscillator (inserted between pins XTI and XTO). In this unit, a clock pulse of 8.4672 MHz is input to pin XTI.

From pin CKO, the system clock pulse is output. (See Figure 10-3.)

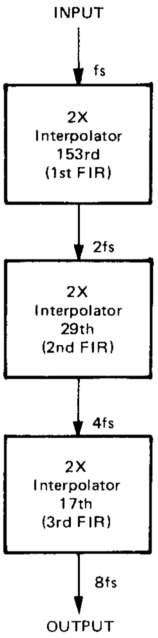

INPUT
fs
2X Interpolator 153rd (1st FIR)
2fs
2X Interpolator 29th (2nd FIR)
4fs
2X Interpolator 17th (3rd FIR)
8fs
OUTPUT

Fig. 8–2 Configuration of basic operation section

$\overline{\text{CKDV}}$		H		L	
$\overline{\text{CKSL}}$		H	L	H	L
XTI input clock frequency (Fxi)	Fxi = 1/tXI	192fs	256fs	384fs	512fs
Clock pulse input method		External clock (input to pin XTI) or internal clock (a crystal oscillator inserted between pin XTI and XTO).			
Internal system clock pulse period	Tsys	tXI		2*tXI	

tXI stands for the XTI input clock pulse period.

Table 8–1 System clock frequency selection and internal system clock

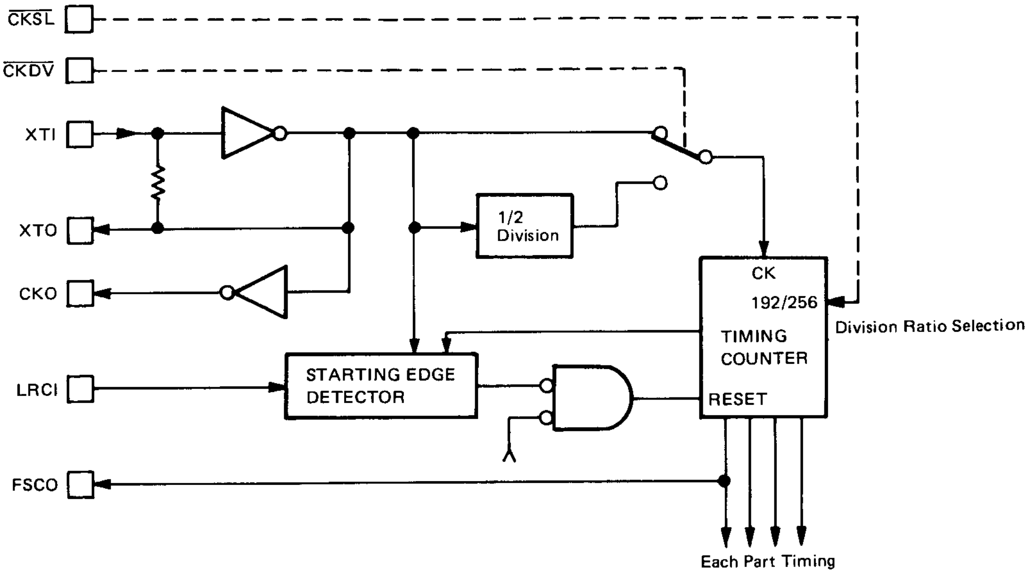

CKSL
CKDV
XTI
XTO
CKO
LRCI
FSCO
1/2 Division
CK
192/256
TIMING COUNTER
RESET
STARTING EDGE DETECTOR
Division Ratio Selection
Each Part Timing

Fig. 8–3 Clock generation circuit

CIRCUIT DESCRIPTION

• Audio data input (DIN, BCKI, LRCI)

The input data is handled as being of 2's complement, MSB first. Each bit of the serial data input to pin DIN is read in to register SIPO (serial/parallel conversion register) a the leading edge of bit clock pulse BCKI, in which it is in turn converted into a parallel data. The output of SIPO is transferred to each of the Lch and Rch input registers at the trailing/leading edge of clock pulse LRCI.

In addition, the operation section and the output section are independent in signal timing from the input section and are therefore unsusceptible to the jitter of the input section. (Jitter-free mote: For details, refer to the description occurring later.)

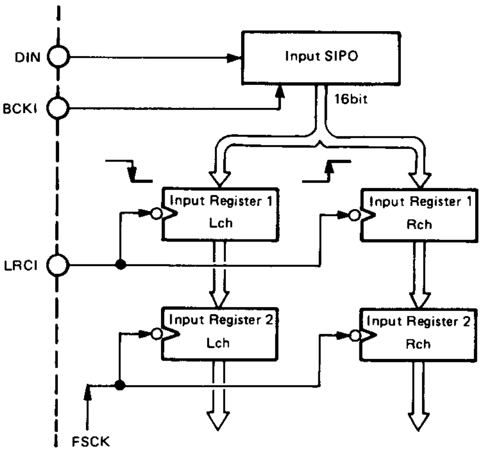
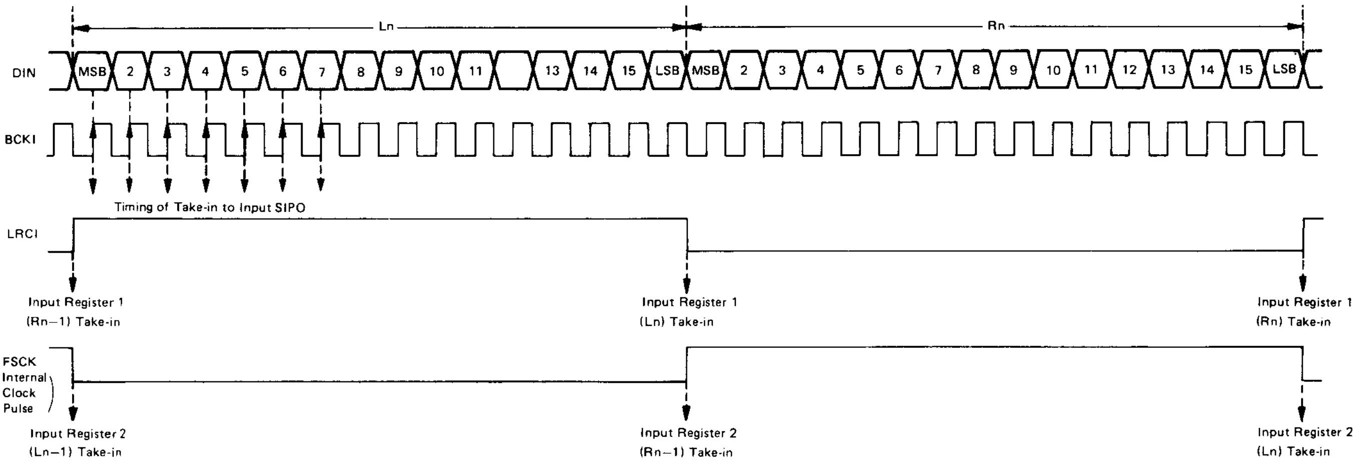

DIN
BCKI
LRCI
FSCK
Input SIPO
16bit
Input Register 1 Lch
Input Register 1 Rch
Input Register 2 Lch
Input Register 2 Rch

Fig. 8–4 Configuration of audio data input section


Ln
Rn
DIN
MSB
2
3
4
5
6
7
8
9
10
11
13
14
15
LSB
MSB
2
3
4
5
6
7
8
9
10
11
12
13
14
15
LSB
BCKI
Timing of Take-in to Input SIPO
LRCI
Input Register 1 (Rn−1) Take-in
Input Register 1 (Ln) Take-in
Input Register 1 (Rn) Take-in
FSCK (Internal Clock Pulse)
Input Register 2 (Ln−1) Take-in
Input Register 2 (Rn−1) Take-in
Input Register 2 (Ln) Take-in

16bits right before LRCI edge is taken in as data.

Fig. 8–5 Audio data input timing example

• Selection between jitter-free mode and compulsory sync mode ($\overline{\text{SYN}}$, FSCO)

The signal timing (internal timing) applied to internal operation or output, that is produced from the system clock pulse (input to pin XTI), is independent from that of the data input section (BCKI, LRCI).

For this internal timing, the method of countering the jitter of clock pulse input LRCI is available in two types, "jitter-free mode" and "compulsory sync mode". Selection between these both is feasible by setting $\overline{\text{SYN}}$.

1) Jitter-free mode ($\overline{\text{SYN}}$="H")

As long as the phase difference between clock pulse LRCI and the internal timing is within +3/8 to −3/8 of the input sampling period (1/fs), the internal timing is not adjusted. Accordingly, even with a jitter component in clock pulse LRCI, the internal timing is not affected so that it is free from faulty operation or jitter transmission to output.

When the phase difference is without the above range, the internal timing is put in phase synchronously with the start side of clock pulse LRCI. More, this treatment is also performed when the reset input is given.

2) Compulsory sync mode ($\overline{\text{SYN}}$="L")

When this mode is engaged, the internal timing is always reset at a pulse edge of the start side of input LRCI. In this case, when a pulse period shorter than the specified system clock pulse period exists due to the jitter of input LRCI, a faulty operation may result.

Conversely, when a pulse period longer exists, the operation is properly made but no equal output timing is obtained.

3) Clock pulse FSCO (output)

This is a clock pulse with a period of an fs obtained from the dividing process of clock pulse XTI.

CIRCUIT DESCRIPTION

• Data and DAC control signal output (DOL, DOR, BCKO, WCKO, DG, $\overline{\text{COB}}$, $\overline{\text{OW18}}$,$\overline{\text{OW20}}$)

1) Output data format

1) MSB first

2) 2's complement/COB (Complemented Offset Binary) selection ($\overline{\text{COB}}$)

2's complement format ($\overline{\text{COB}}$="H")

COB format ($\overline{\text{COB}}$="L")

2) Output data number-of-bits selection ($\overline{\text{OW18}}$, $\overline{\text{OW20}}$)

As to the number of bits for the output data, any of 16, 18 and 20-bit can be selected.

16-bit output ($\overline{\text{OW18}}$="H", $\overline{\text{OW20}}$="H")

18-bit output ($\overline{\text{OW18}}$="L", $\overline{\text{OW20}}$="H")

20-bit output ($\overline{\text{OW18}}$="H", $\overline{\text{OW20}}$="L")

However, this unit is set at the 16-bit output mode.

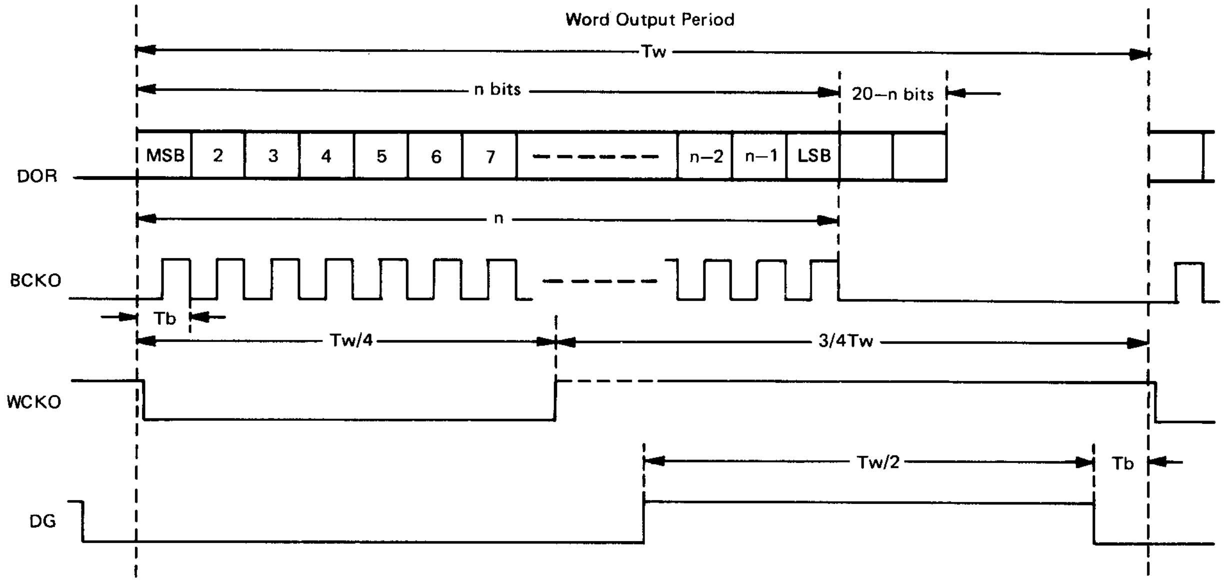
3) Output timing

The output timing of the audio output section is determined according to each internal system clock pulse frequency.

Item	Symbol in diagram	$\overline{\text{CKSL}}$	
		H	L
Internal system clock pulse frequency		192fs	256fs
Bit clock pulse period	Tb	Tsys	Tsys
Data word length	Tw	24*Tsys	32*Tsys

Tsys : internal clock pulse period (Refer to Table 10-1.)
Tb, Tw : serial output timing (Refer to Figure 10-6.)

Table 8–2 Output timing



Note : n means the number of output word bits.

Fig. 8–6 Output timing

• System reset ($\overline{\text{RST}}$)

When the reset input is made in the jitter-free mode, the internal operation timing is reset in synchronization with the leading edge of input LRCI. Making use of this, the output timing in the jitter-free mode can be aligned with input LRCI.

In the compulsory sync mode, no system reset is needed. Even in the jitter-free mode, the output timing does not need to be aligned with input LRCI and no system reset is necessary.

For system reset at power ON, externally connect a capacity of around 100pF to pin $\overline{\text{RST}}$. (Figure 8-7)

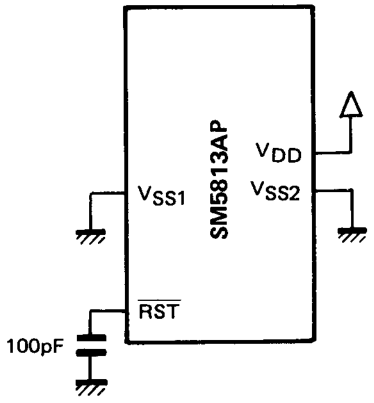
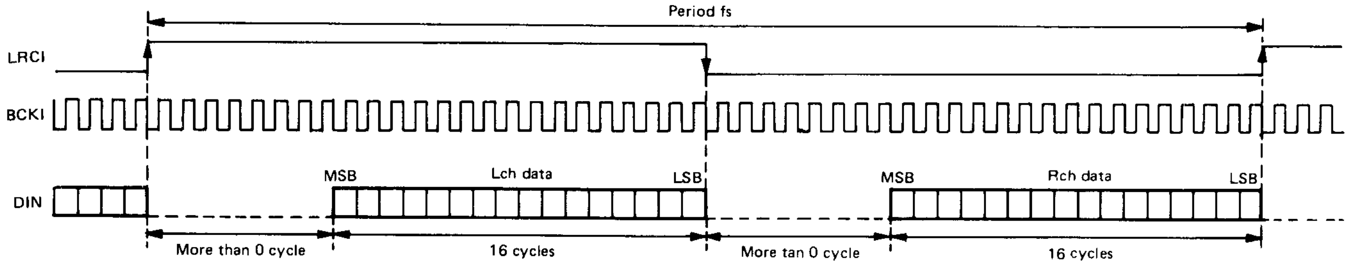


Fig. 8–7 Circuit example of system reset at power ON

CIRCUIT DESCRIPTION

8–9. Timing chart

• Serial input timing (DIN, BCKI, LRCI)


Period fs
LRCI
BCKI
DIN
MSB
Lch data
LSB
MSB
Rch data
LSB
More than 0 cycle
16 cycles
More tan 0 cycle
16 cycles

Note : BCKI should have 18 cycles or more for one word.

Fig. 8–8 Serial input timing

• Serial output timing (DOL, DOR, BCKO, WCKO, DG)

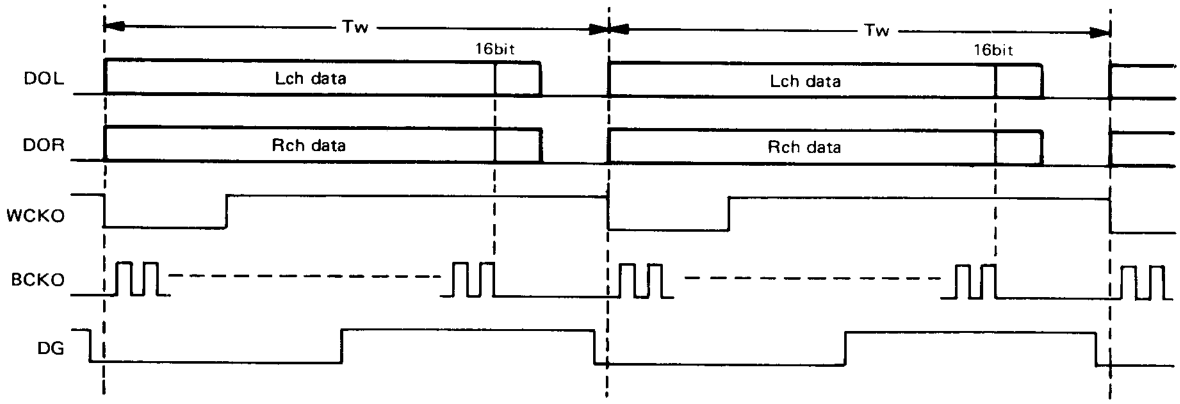
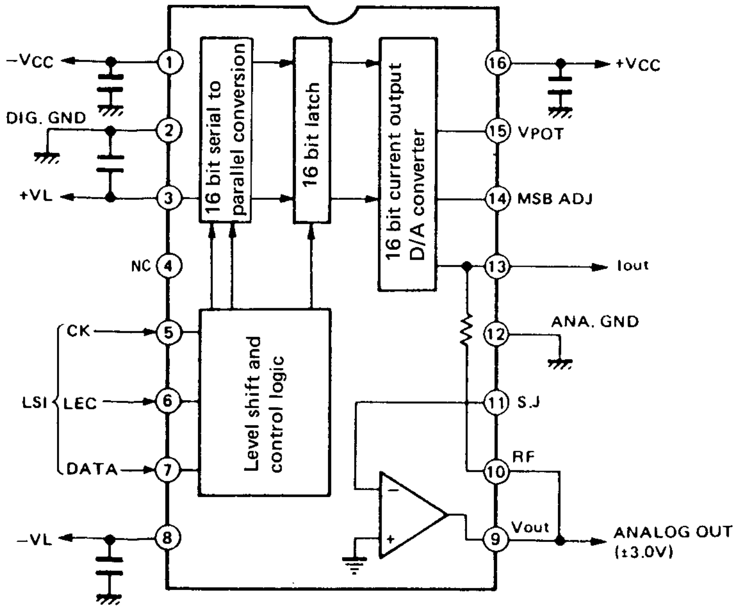

Tw
Tw
16bit
16bit
DOL
Lch data
Lch data
DOR
Rch data
Rch data
WCKO
BCKO
DG

Fig. 8–9 Serial output timing

9. D/A converter PCM56P-L (X32-136X-XX : IC7, 8) : Japan made (X32-142X-XX : IC7, 8) : Singapore made

9–1. Terminal connection diagram and block diagram


–VCC
DIG. GND
+VL
NC
CK
LSI
LEC
DATA
–VL
16 bit serial to parallel conversion
16 bit latch
16 bit current output D/A converter
Level shift and control logic
+VCC
VPOT
MSB ADJ
Iout
ANA. GND
S.J
RF
Vout
ANALOG OUT (±3.0V)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

9–2. Explanation of terminals

Terminal No.	Terminal name	Function
1	–Vcc	Analog negative power supply.
2	DIG GND	Digital ground.
3	+VL	Logic positive power supply.
4	NC	No connection.
5	CK	Clock input.
6	LEC	Latch enable control input.
7	DATA	Data input.
8	–VL	Logic negative power supply.
9	Vout	Voltage output.
10	RF	Feedback resistor.
11	S.J	Summing junction (op amp. input).
12	ANA GND	Analog ground.
13	Iout	Current output.
14	MSB GND	MSB adjustment terminal.
15	V POT	Potentiometer terminal.
16	+Vcc	Analog positive power supply.

MECHANISM OPERATION DESCRIPTION (X92-1300-02)

JAPAN MADE

Mechanism operation description

Fig. 1 shows the relationship of mechanisms in the STOP mode. The OPEN/CLOSE operation of the mechanism and the UP/DOWN operation of the pickup chassis when loading the disc are description below.

Note 1 : The black arrow (OPEN) and the white arrow (CLOSE) in the operation description have the following meanings :

Black arrow (OPEN) : Tray opening direction
(Tray OPEN)
White arrow (CLOSE) : Tray closing direction
(Tray CLOSE)

Note 2 : Figures in the bracket ( ) in the operation description or accompanied with the part name in the diagram show the reference numbers in the Exploded View.

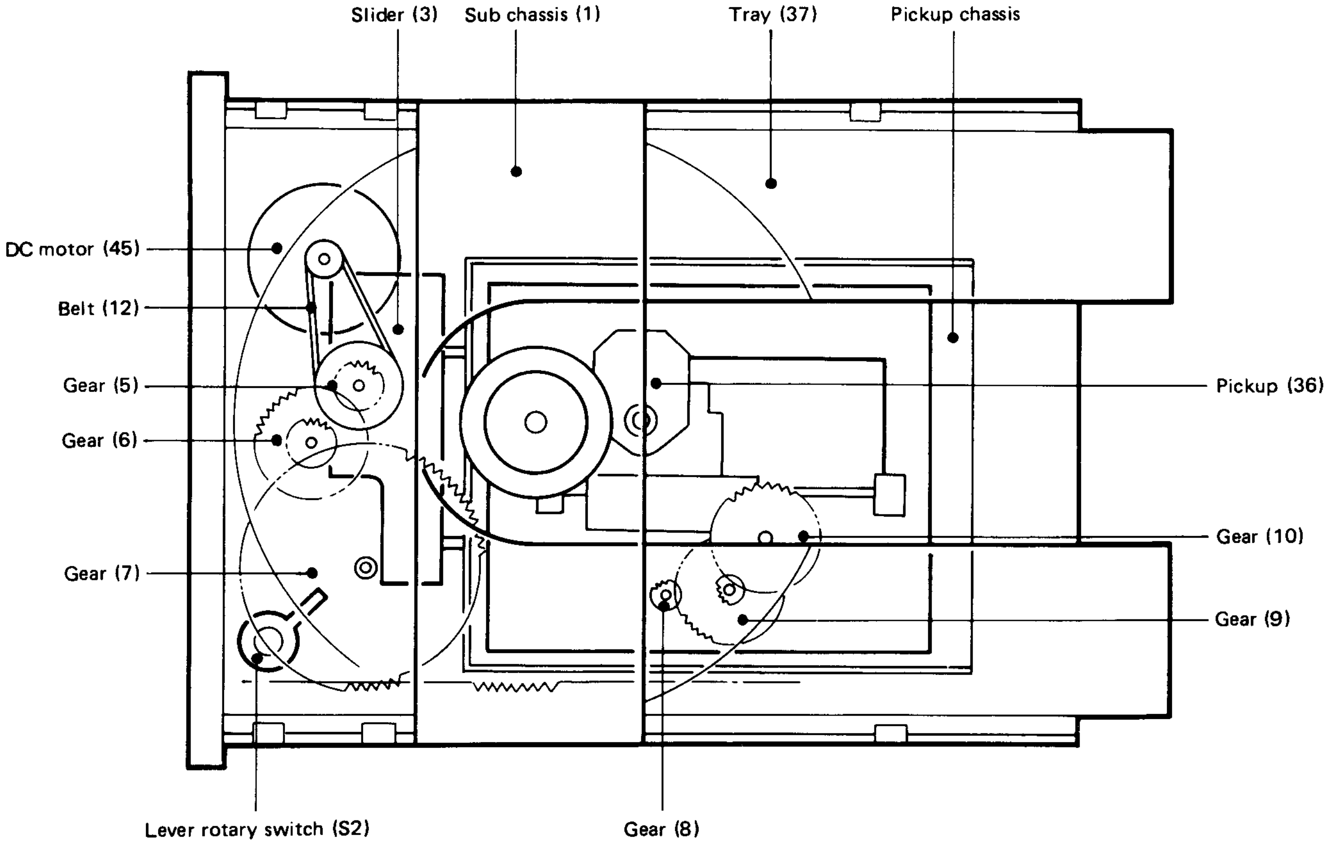

Slider (3)
Sub chassis (1)
Tray (37)
Pickup chassis
DC motor (45)
Belt (12)
Gear (5)
Gear (6)
Gear (7)
Pickup (36)
Gear (10)
Gear (9)
Lever rotary switch (S2)
Gear (8)

Fig. 1 Tray closed status

MECHANISM OPERATION DESCRIPTION (X92-1300-02)
JAPAN MADE

1. Tray OPEN/CLOSE operation

By the rotation of the motor (❶), the gear (❷) is rotated and the tray starts OPEN/CLOSE (❸) operation. The OPEN/CLOSE operation stops when the protrusion of the gear comes in contact with the detection switch (❹).

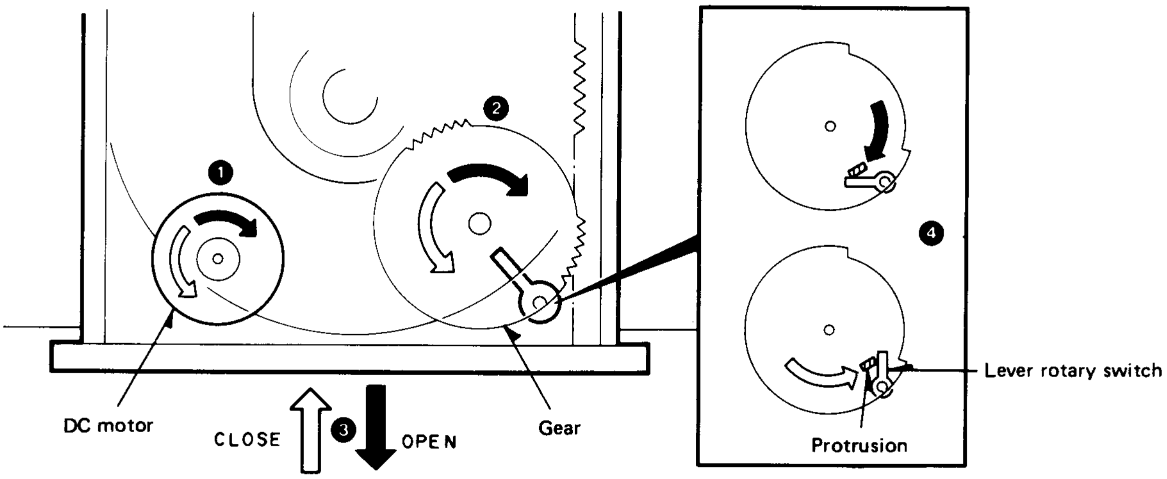

❷
❶
❹
Lever rotary switch
DC motor
CLOSE
❸
OPEN
Gear
Protrusion

Fig. 2 Tray OPEN/CLOSE operation

2. Pickup chassis UP/DOWN movement

Accompanied with the OPEN/CLOSE operation, the lever is shifted (❷) by the rotation of the gear (❶). Along with the grooves in the lever, the pickup chassis moves up and down (❸).

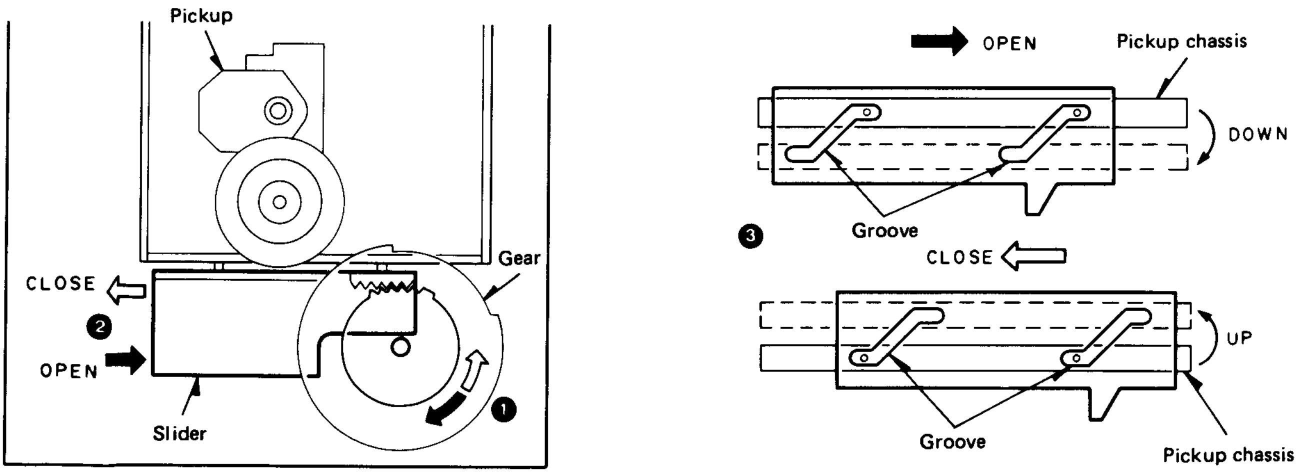

Pickup
Gear
CLOSE
❷
OPEN
Slider
❶
OPEN
Pickup chassis
DOWN
❸
Groove
CLOSE
UP
Groove
Pickup chassis

Fig. 3 Pickup chassis UP/DOWN movement

MECHANISM OPERATION DESCRIPTION (X92-1300-02) JAPAN MADE

3. Gear installing position

When re-installing the gear after removing it, attach the gear at the position (Ⓐ) shown in the condition when the pickup chassis has been lowered.

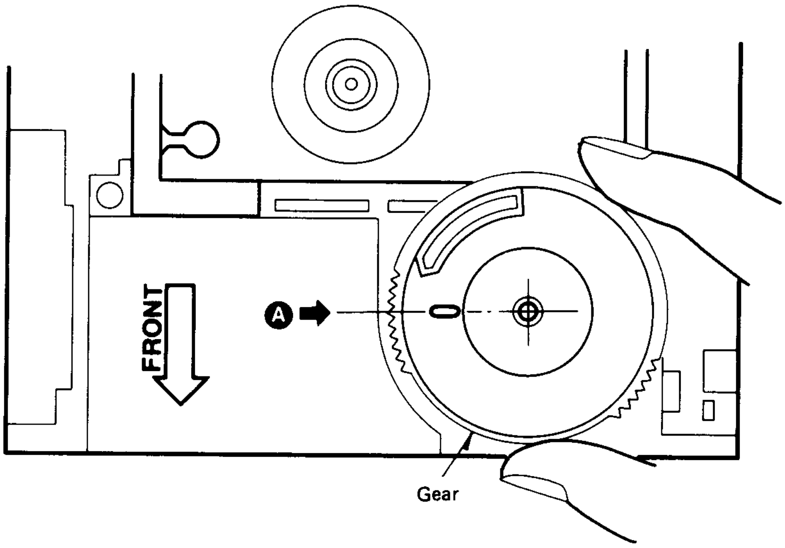


Fig. 4 Gear installing position

MECHANISM OPERATION DESCRIPTION (X92-1340-03)

SINGAPORE MADE

Mechanism operation description

Fig. 1 shows the relationship of mechanisms in the STOP mode. The OPEN/CLOSE operation of the mechanism and the UP/DOWN operation of the pickup chassis when loading the disc are described below.

Note 1 : The black arrow (OPEN) and the white arrow (CLOSE) in the operation description have the following meanings :

Black arrow (OPEN) : Tray opening direction
(Tray OPEN)
White arrow (CLOSE) : Tray closing direction
(Tray CLOSE)

Note 2 : Figures in the bracket ( ) in the operation description or accompanied with the part name in the diagram show the reference numbers in the Exploded View.

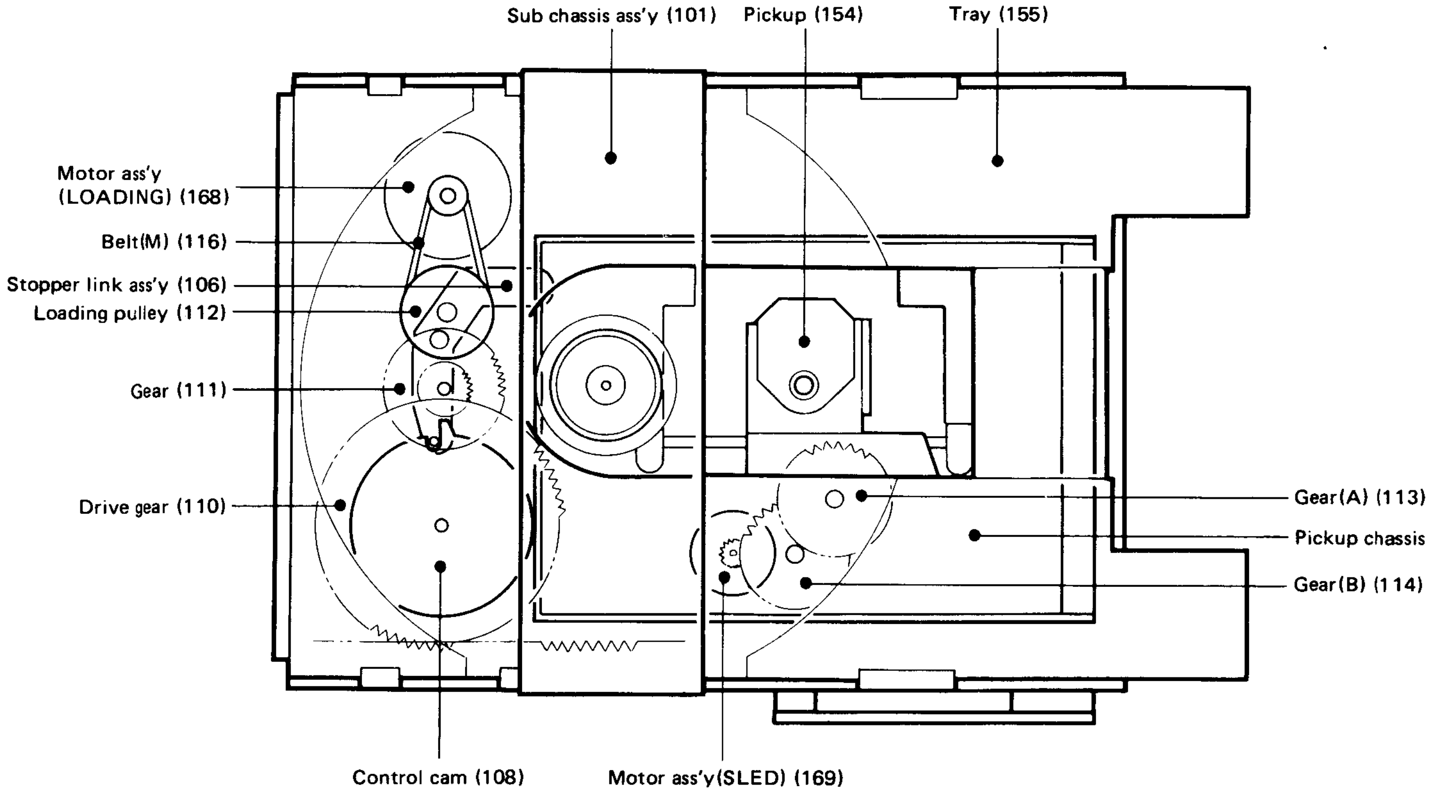

Sub chassis ass'y (101)
Pickup (154)
Tray (155)
Motor ass'y (LOADING) (168)
Belt(M) (116)
Stopper link ass'y (106)
Loading pulley (112)
Gear (111)
Drive gear (110)
Gear(A) (113)
Pickup chassis
Gear(B) (114)
Control cam (108)
Motor ass'y(SLED) (169)

Fig. 1 Tray closed status

MECHANISM OPERATION DESCRIPTION (X92-1340-03)

SINGAPORE MADE

1. Tray OPEN/CLOSE operation

By the rotation of the DC motor (①), the drive gear (②) is rotated to provide the tray OPEN/CLOSE operation (③).

The tray OPEN/CLOSE operation stops when the protrusion of the drive gear comes into contact with the leaf switch (④).

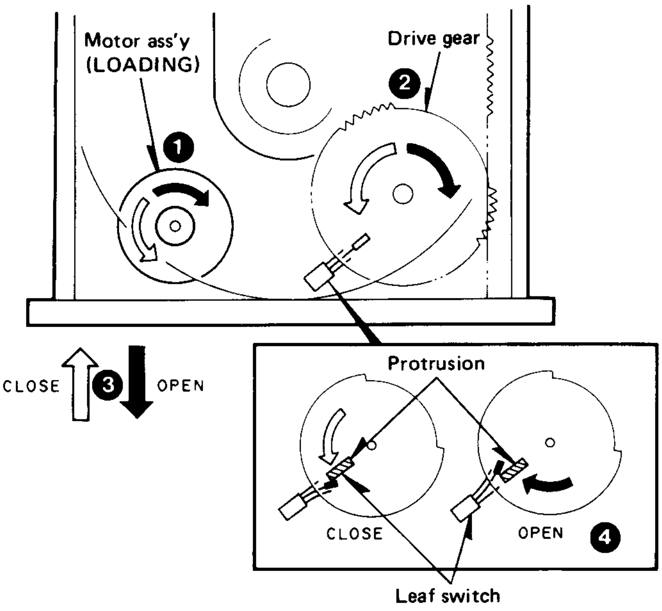

Motor ass'y
(LOADING)
①
Drive gear
②
CLOSE
③
OPEN
Protrusion
CLOSE
OPEN
④
Leaf switch

Fig. 2 Tray OPEN/CLOSE operation

2. Pickup chassis UP/DOWN movement

The control cam attached coaxially with the drive gear rotates in response to the tray OPEN/CLOSE operation (⑤). By this rotation, the protrusion of the pickup chassis moves along the groove of the control cam (⑥) so that the pickup chassis moves UP and DOWN correspondingly(⑦).

When the pickup chassis ascends fully by the rotation of the control cam in the UP (CLOSE) direction (⑧), the pickup chassis is locked by the lever (⑨).

When the control cam rotates in the DOWN (OPEN) direction (⑩), the pickup chassis is unlocked (⑪).

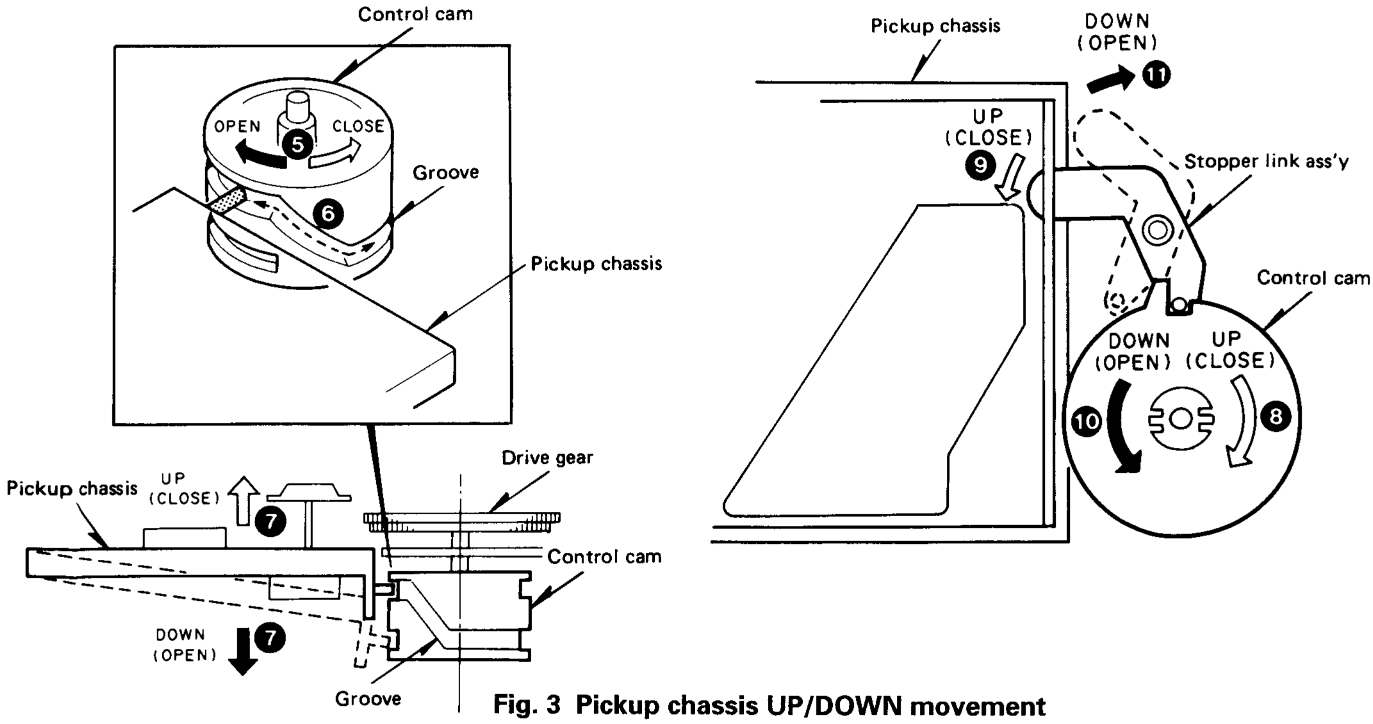

Control cam
OPEN
CLOSE
⑤
Groove
⑥
Pickup chassis
Drive gear
Pickup chassis
UP
(CLOSE)
⑦
Control cam
DOWN
(OPEN)
⑦
Groove
Pickup chassis
DOWN
(OPEN)
⑪
UP
(CLOSE)
⑨
Stopper link ass'y
Control cam
DOWN
(OPEN)
UP
(CLOSE)
⑩
⑧

Fig. 3 Pickup chassis UP/DOWN movement

ADJUSTMENT

No.	ITEM	INPUT SETTING	OUTPUT SETTING	PLAYER SETTING	ALIGNMENT POINT	ALIGN FOR	FIG
1	LASER POWER	–	Apply the sensor section of the optical power meter on the pickup lens.	Short-circuit pins TEST and turn the power on to enter the test mode. Press the MANUAL S. key(▶▶)to move the pickup outwards. Press the CHECK key to check that the LD emits light. Then, confirm that the display is" 03 ".	–	On the power from 0.1 to 0.3mW, when the diffraction grating is correctly aligned with the RF level of 1.5Vp-p or more and the TE (servo open) level of 1.5Vp-p or more, the pickup is acceptable.	(a)
2	VCO	–	Connect a frequency counter between PLCK (TP7) and GND (TP6). (X32-136/142)	Press the STOP key. and confirm that the display is "01".	L14 (X32-136/142)	4.32MHz	(b)
3	TRACKING ERROR BALANCE	Test disc Type 4	Connect an oscilloscope as follows. CH1: RF (X29-189 TP1) CH2: TE (X32-136 CN6 pin 1) (X32-142 CN6 pin 1)	Press the REPEAT key to open the tray. Load a disc and close the tray by pushing it by hand. Then,press the CHECK key. Confirm that the display is"03".	TE BALANCE VR2 (X29-189)	Symmetry between upper and lower patterns, or DC=0±0.05V	(c)
4	FOCUS ERROR BALANCE	Test disc Type 4	Connect an oscilloscope as follows. CH1: RF (X29-189 TP1) CH2: TE (X32-136 CN6 pin 1) (X32-142 CN6 pin 1)	Press the PLAY key. Confirm that the display is" 05 " .	FE BALANCE VR1 (X29-189)	Optimum eyepattern	(d)
5	FOCUS GAIN	Test disc Type 4 Apply signal of 1kHz, 0.5Vrms to CN5 pin 2. (X32-136/142)	Connect an LPF to CN5 pin 1, to which connect an oscilloscope or an AC voltmeter. (X32-136/142)	Press the PLAY key. Confirm that the display is" 05 ".	FOCUS GAIN VR6 (X32-136/142)	50mVrms	(e)
6	TRACKING GAIN	Test disc Type 4 Apply signal of 2kHz, 0.5Vrms to CN5 pin 4. (X32-136/142)	Connect an LPF to CN5 pin 5, to which connect an oscilloscope or an AC voltmeter. (X32-136/142)	Press the PLAY key. Confirm that the display is" 05 " .	TRACKING GAIN VR7 (X32-136/142)	50mVrms	(e)
7	LINE OUTPUT	Test disc Type 4	Connect an AC voltmeter to the output terminal(FIXED).	Play the signal of 1kHz, 0 dB in track number 2.	VR1:L VR2:R (X32-136/142)	2.0Vrms	(f)

(Note) Type 4 disc: SONY YEDS-18 Test Disc or equivalent.
LPF: Around 47kΩ+390pF or so.

REGLAGE

N°	ITEM	REGLAGE D'ENTREE	REGLAGE DE SORTIE	REGLAGE DE LA LECTURE	POINT D'ALIGNEMENT	ALIGNEMENT POUR	FIG
1	PUISSANCE LASER	–	Appliquer la section détecteur du compteur de puissance optique sur la lentille du capteur.	Court-circuiter les broches TEST et fournir l'alimentation pour entrer en mode de test. Presser la touche MANUAL S.(⏩) pour déplacer le déteteur vers l'extérieur. Presser la touche CHECK pour vérifier que la diode émet de la lumière.S'assurer ensuite que l'affichage est " 03 ".	–	Sur l'alimentation de 0,1 à 0,3mW, quand le réseau de diffraction est correctement aligné avec le niveau RF de 1,5Vc-c ou plus et le niveau TE(servo ouvert)de 1,5vc-c ou plus, le détecteur est acceptable.	(a)
2	VCO	–	Raccoder un compteur de fréquence entre PLCK(TP7) et GND.(TP6) (X32-136/142)	Presser la touche STOP. S'assurer que l'affichage est " 01 ".	L14 (X32-136/142)	4,32MHz	(b)
3	BALANCE D'ERREUR D'ALIGNEMENT	Disque test Type 4	Raccorder un oscilloscope comme suit. CH1: RF (X29-189 TP1) CH2: TE (X32-136 CN6 broche 1) (X32-142 CN6 broche 1)	Presser la touche REPEAT pour ouvrir le tiroir. Charger un disque et fermer le tiroir en le Poussant à la main. Presser ensuite la touche CHECK. S'assurer que l'affichage est"03".	TE BALANCE VR2 (X29-189)	Symétrie entre les formes supérieure et inférieure ou DC=0±0,05V	(c)
4	BALANCE D'ERREUR DE MISE AU POINT	Disque test Type 4	Raccorder un oscilloscope comme suit. CH1: RF (X29-189 TP1) CH2: TE (X32-136 CN6 broche 1) (X32-142 CN6 broche 1)	Presser la touche PLAY. S'assurer que l'affichage est " 05 ".	FE BALANCE VR1 (X29-189)	Forme optimum	(d)
5	GAIN DE MISE AU POINT	Disque test Type 4 Appliquer un signal de 1kHz, 0,5Vrms à CN5 broche 2. (X32-136/142)	Connecter un filtre passe-bas à CN5 broche 1 et raccorder un oscilloscope ou un voltmètre CA. (X32-136/142)	Presser la touche PLAY. S'assurer que l'affichage est " 05 ".	GAIN DE MISE AU POINT VR6 (X32-136/142)	50mVrms	(e)
6	GAIN D'ALIGNEMENT	Disque test Type 4 Appliquer un signal de 2kHz, 0,5Vrms à CN5 broche 4. (X32-136/142)	Connecter un filtre passe-bas à CN5 broche 5 et raccorder un oscilloscope ou un voltmètre CA. (X32-136/142)	Presser la touche PLAY. S'assurer que l'affichage est " 05 ".	GAIN DE MISE AU POINT VR7 (X32-136/142)	50mVrms	(e)
7	SORTIE DE LIGNE	Disque test Type 4	Raccorder un voltmètre CA à la borne de sortie(FIXED).	Lire le signal de 1kHz, 0dB dans la piste numéro 2.	VR1:G VR2:D (X32-136/142)	2,0Vrms	(f)

(Remarque)Disque de type 4:Disque test SONY YEDS-18 ou équivalent.
Filtre passe-bas:environ 47kΩ+390pF.

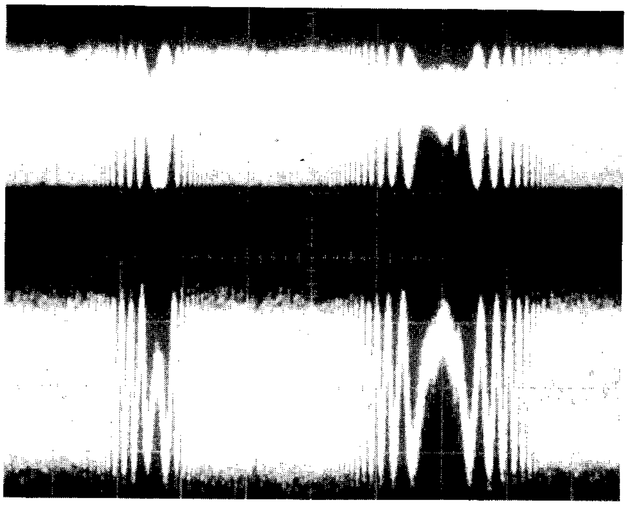
ABGLEICH

NR.	GEGENSTAND	EINGANGSEINSTELLUN	AUSGANGSEINSTELLUNGE	SPIELEREINSTELLUNG	ABGLEICHPUNKT	ABGLEICHUNG	ABB.
1	LASERLEISTUNG	–	Das Sensorteil des optischen Leistungmeters auf die Aufnehmerlinse ansetzen.	Die Stifte TEST kurzschließen und die Spannungsversorgung einschalten, um den Testmodus zu aktivieren. Die Taste MANUAL S.(▶▶)drücken, um den Abtaster nach außen zu bewegen. Die CHECK-Taste drücken, um zu prüfen, ob die LD Light abgibt. Dann sicherstellen, daß"03"angezeigt wird.	–	Bei der Leistung von 0,1 bis 0,3mW, wenn das beugungsgitter richtig mit dem RF-Pegel von 1,5Vs-s oder mehr und dem TE-Pegel(Servo offen) von 1,5Vs-s oder mehr ausgerichtet ist, ist der Abtaster zugänglich.	(a)
2	VCO	–	Einen Frequenzzähler zwischen PLCK(TP7) und GND(TP6) anschließen. (X32-136/142)	Die STOP-Taste drücken und prüfen, daß" 01 " auf dem Display angezeigt wird.	L14 (X32-136/142)	4,32MHz	(b)
3	SPURHALTEFEHLERAUSGLEICH	Testdisc Typ 4	Ein Oszilloskop wie folgt anschließen: Kanal 1: RF (X29-189 TP1) Kanal 2: TE (X32-136 CN6 Stift 1) (X32-142 CN6 Stift 1)	Die REPEAT-Taste drücken, um den Träger zu öffnen. Eine Disc einlegen und den Träger mit der Hand schließen. Dann die CHECK-Taste drücken. Sicherstellen, das " 03 " angezeigt wird.	TE BALANCE VR2 (X29-189)	Symmetrie zwischen oberen und umteren Mustern oder Gleichstrom DC=0±0,05V	(c)
4	FOKUSFEHLERAUSGLEICH	Testdisc Typ 4	Ein Oszilloskop wie folgt anschließen: Kanal 1: RF (X29-189 TP1) Kanal 2: TE (X32-136 CN6 Stift 1) (X32-142 CN6 Stift 1)	Die PLAY-Taste drücken und sicherstellen, daß " 05 " angezeigt wird.	FOKUSFEHLERAUSGLEICH VR1 (X29-189)	Optimales Augenmuster	(d)
5	FOKUSVERSTÄRKUNG	Testdisc Typ 4 Ein Signal von 1kHz, 0,5Vrms an CN5 Stift 2 anlegen. (X32-136/142)	Ein Tiefpaßfilter an CN5 Stift 1 und an dieses ein Oszilloskop oder Wechselstrom-Voltmeter anschließen. (X32-136/142)	Die PLAY-Taste drücken und sicherstellen, daß " 05 " angezeigt wird.	FOKUSVERSTÄRKUNG VR6 (X32-136/142)	50mVrms	(e)
6	SPURHALTEVERSTÄRKUNG	Testdisc Typ 4 Ein Signal von 2kHz, 0,5Vrms an CN5 Stift 4 anlegen. (X32-136/142)	Ein Tiefpaßfilter an CN5 Stift 5 und an dieses ein Oszilloskop oder Wechselstrom-Voltmeter anschließen. (X32-136/142)	Die PLAY-Taste drücken und sicherstellen, daß " 05 " angezeigt wird.	SPURHALTEVERSTÄRKUNG VR7 (X32-136/142)	50mVrms	(e)
7	HOCHPEGELAUSGANG	Testdisc Typ 4	Ein Wechselstrom-Voltmeter an die Ausgangsklemme(FIXED) anschließen.	Das Signal von 1kHz, 0dB in Titel Nr.2 wiedergeben.	VR1:L VR2:R (X32-136/142)	2,0Vrms	(f)

(Hinweis) Typ 4 Disc: SONY YEDS-18 Testdisc oder Äquivalent.
Tiefpaßfilter:ca.47kΩ+390pF oder ähnlich.

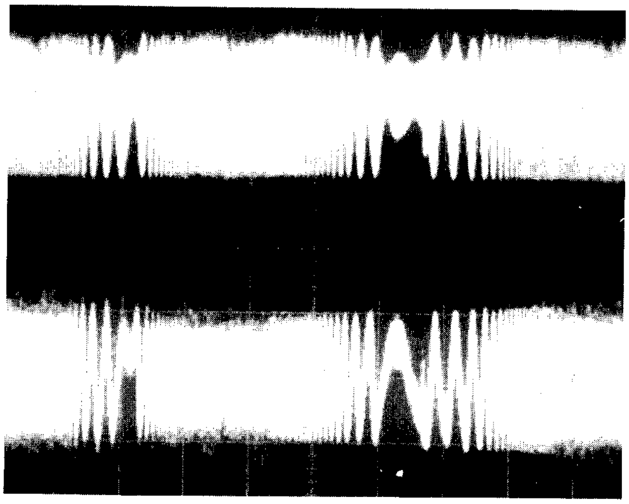
ADJUSTMENT/REGLAGE/ABGLEICH

DIFFRACTION GRID ADJUSTMENT/REGLAGE DU RESEAU DE DIFFRACTION/BEUGUNGSGITTER-EINSTELLUNG



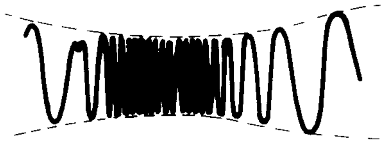
(Photo. 1)
(Photo. 1)
(Foto. 1)

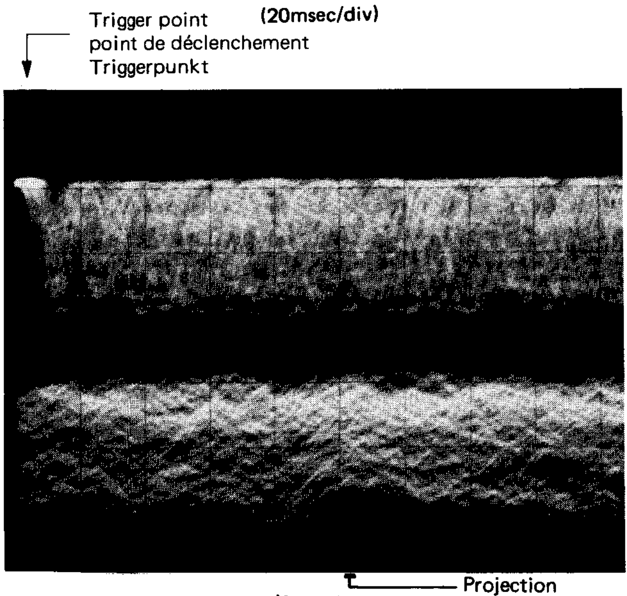
- RF signal and T.Error signal after diffraction grating adjustment.
- Signal RF et signal T.Error après ajustement de réseau de diffraction.
- RF-Signal und T.Error-Signal nach Diffraktions-gitter-Einstellung.



(Photo. 2)
(Photo. 2)
(Foto. 2)

- RF signal and T.Error signal when there is small diffraction grating position error.
- The T.Error signal level is small, and the envelope is as shown in the diagram below.
- Signal RF et signal T.Error quand il y a une petite erreur de position du réseau de diffraction.
- Le niveau de signal T.Error est petit et l'envelope est telle qu'indiquée dans le diagramme ci-dessous.
- RF-Signal und T.Error-Signal bei kleinem Diffraktionsgitter-Positionierungsfehler.
- Der T.Error-Signalpegel ist klein, und die Hüll-kurve ist wie in der Abbildung unten.

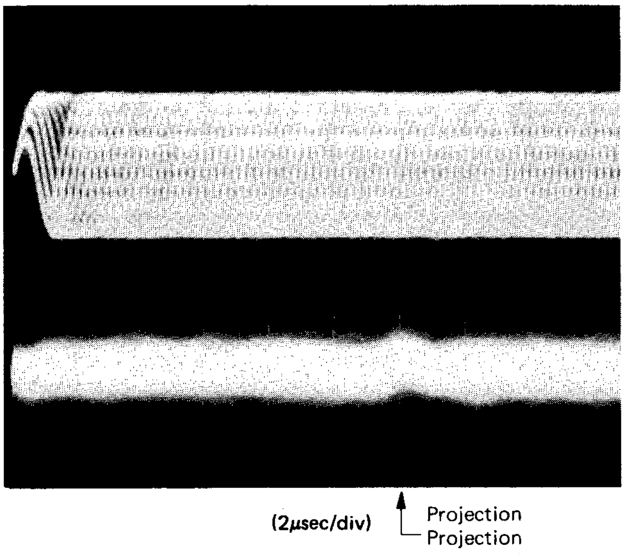




(Photo. 3)
(Photo. 3)
(Foto. 3)

- RF signal and T.Error signal in test mode (with focusing ON).
- When the sub-beam traces the same bit series as the main beam during diffraction grating adjustment, bringing the RF trigger point to the position shown in the Photo causes a "projection" to be observies in the T.Error waveform.
- Le signal RF et le signal T.Error en mode de test (avec la mise au point sur ON).
- Quand un faisceau auxiliaire tracela même série de bits que le faisceau principal pendant l'ajustement de réseau de diffraction, l'apport du point de déclenchement RF à la position indiquée dans la photo provoque une "projection" qui s'observe dans la forme d'onde d' T.Error.
- RF-Signal und T.Error-Signal im Testmodus (bei eingeschalteter Fokussierung).
- Wenn der Nebenstrahl die gleiche Bitreihe wie der Hauptstrahl während der Diffraktionsgitter-Einstellung verfolgt und den RF-Triggerpunkt auf die im Foto gezeigte Position bringt, wird eine "Hervorstehung" verursacht, die in der T.Error-Wellenform beobachtet werden kann.

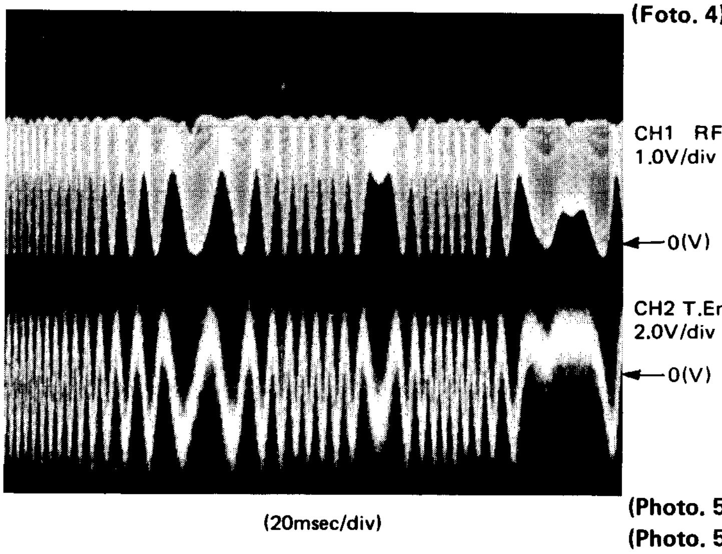
ADJUSTMENT/REGLAGE/ABGLEICH



AC coupling for CH2 only
Couplage CA pour canal 2 seulement
AC-Kopplung nur für Kanal 2

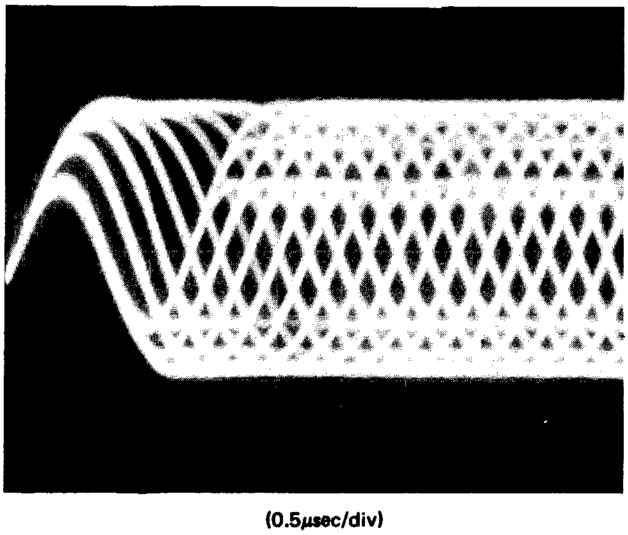
(Photo. 4)
(Photo. 4)
(Foto. 4)

- RF signal and E.Spot signal in test mode (PLAY).
- If the diffraction grating has been adjusted properly, the influence of triggering is observed on the E.Spot waveform of approx. $12\mu s$ after RF signal, in the form of a projection.
- Signal RF et signal E.Spot en mode de test (PLAY).
- Si le réseau de diffraction a été ajusté correctement, l'influence du déclenchement s'observe sur la forme d'onde E.Spot d'environ $12\mu s$ après le signal RF, sous la forme d'une projection.
- RF-Signal und E.Spot-Signal im Testmodus (PLAY).
- Wenn das Diffraktionsgitter richtig eingestellt wurde, wird der Einfluß des Triggers in der E.Spot-Wellenform etwa $12\mu s$ nach dem RF-Signal in der Form einer Hervorstehung beobachtet.



(Photo. 5)
(Photo. 5)
(Foto. 5)

- RF signal and T.Error signal; in test mode (Focusing ON). (Disc type 4)
- Adjust T.Error so that the waveform is symmetrical above and below 0V. (VR1 of X29-1890)
- Signal RF et signal T.Error; en mode test (mise au point ON). (Disque de type 4)
- Ajuster T.Error pour que la forme d'onde soit symétrique en-dessus et au-dessous de 0V. (VR1 de X29-1890)
- RF-Signal und T.Error-Signal; im Testmodus (Fokussierung eingeschaltet). (Disc-Typ 4)
- T.Error so einstellen, daß die Wellenform über und unter 0V symmetrisch ist. (VR1 von X29-1890)

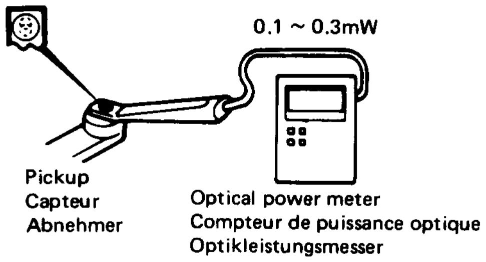


(Photo. 6)
(Photo. 6)
(Foto. 6)

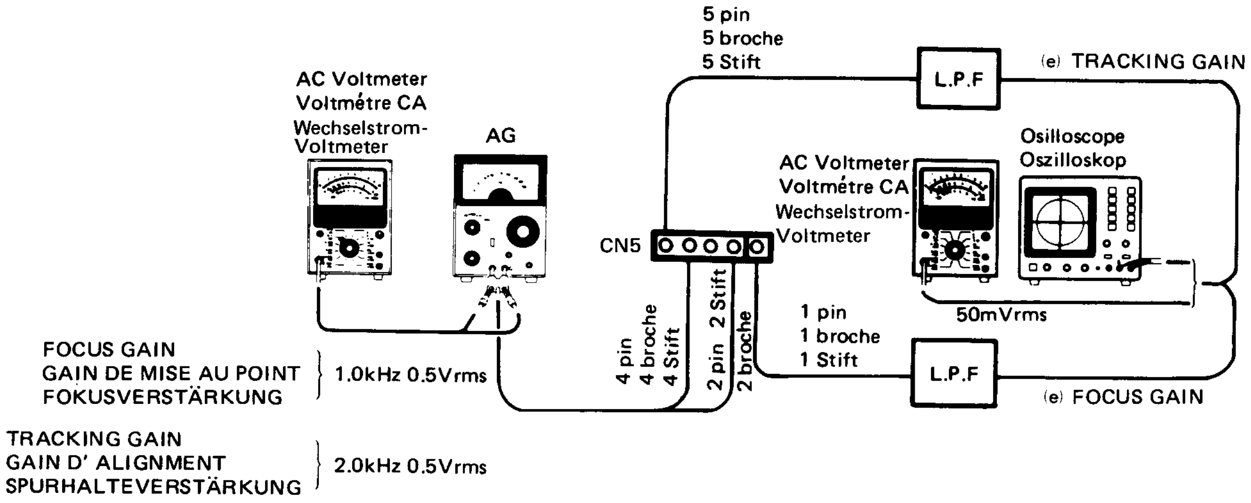
- RF signal in test mode (PLAY).
- Perform the tangential and focusing offset adjustments so that each of the center cross points are focused into one point on the display. The crossing points above and below the center shall also be displayed clearly.
- Signal RF en mode de test (PLAY).
- Effectuer les ajustements d'offset tangentiel et de mise au point pour que chacun des points de croisement central soit mis au point sur un point de l'affichage. Les points de croisement au-dessus et en-dessous du centre doivent aussi être affichés clairement.
- RF-Signal im Testmodus (PLAY).
- Die Tangential- und Fokusversatz-Einstellungen so durchführen, daß jeder der mittleren Kreuzungspunkte in einem Punkt auf dem Display fokussiert wird. Auch die Kreuzungspunkte über und unter der Mitte müssen klar angezeigt werden.

ADJUSTMENT/REGLAGE/ABGLEICH

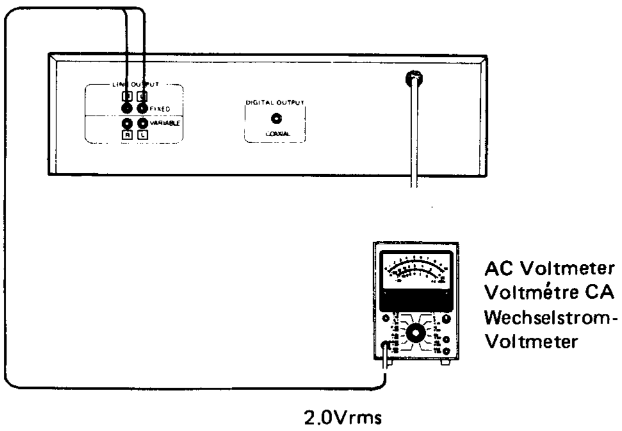
(a) Laser Power


0.1 ~ 0.3mW
Pickup
Capteur
Abnehmer
Optical power meter
Compteur de puissance optique
Optikleistungsmesser

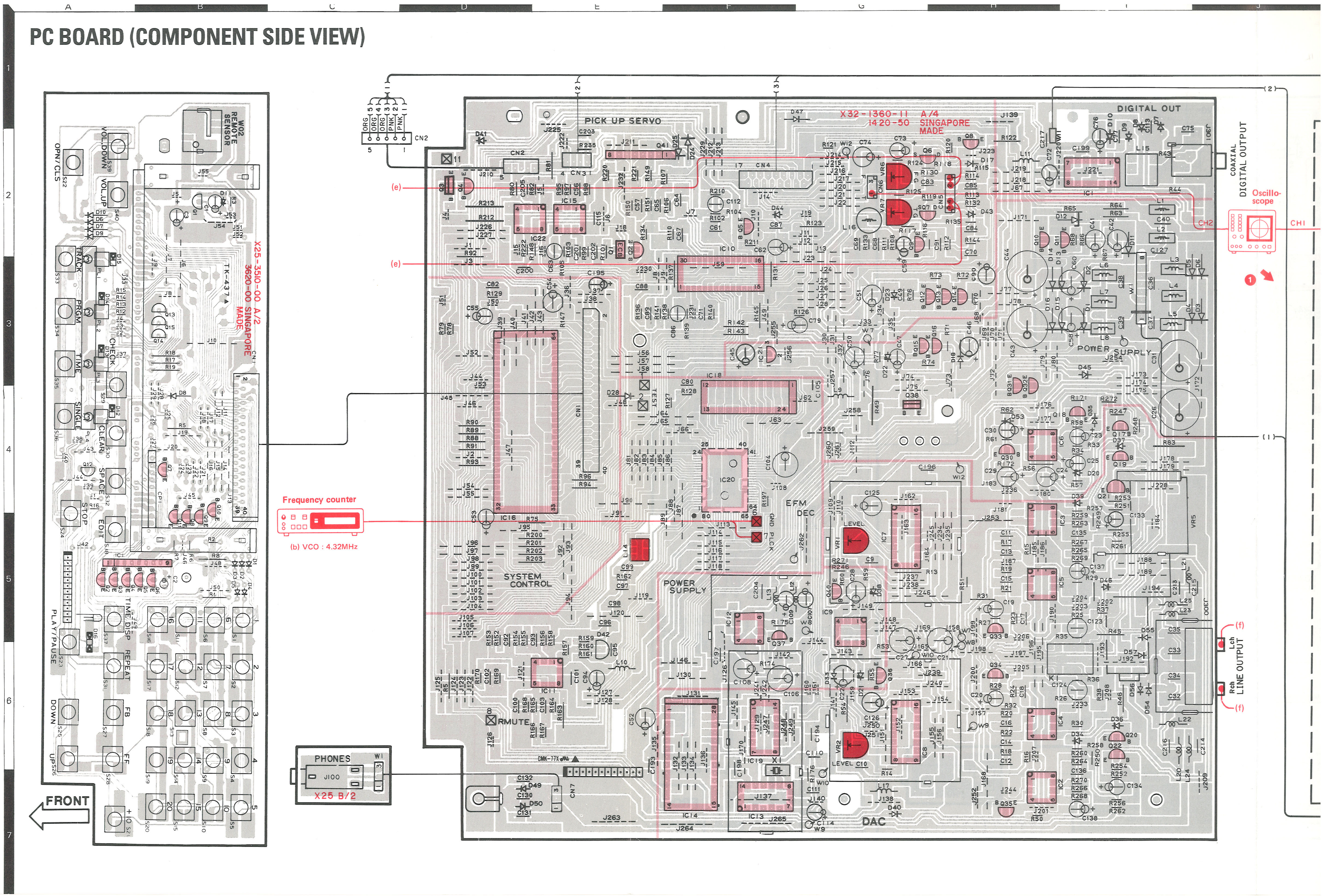
(e) Focus Gain and Tracking Gain

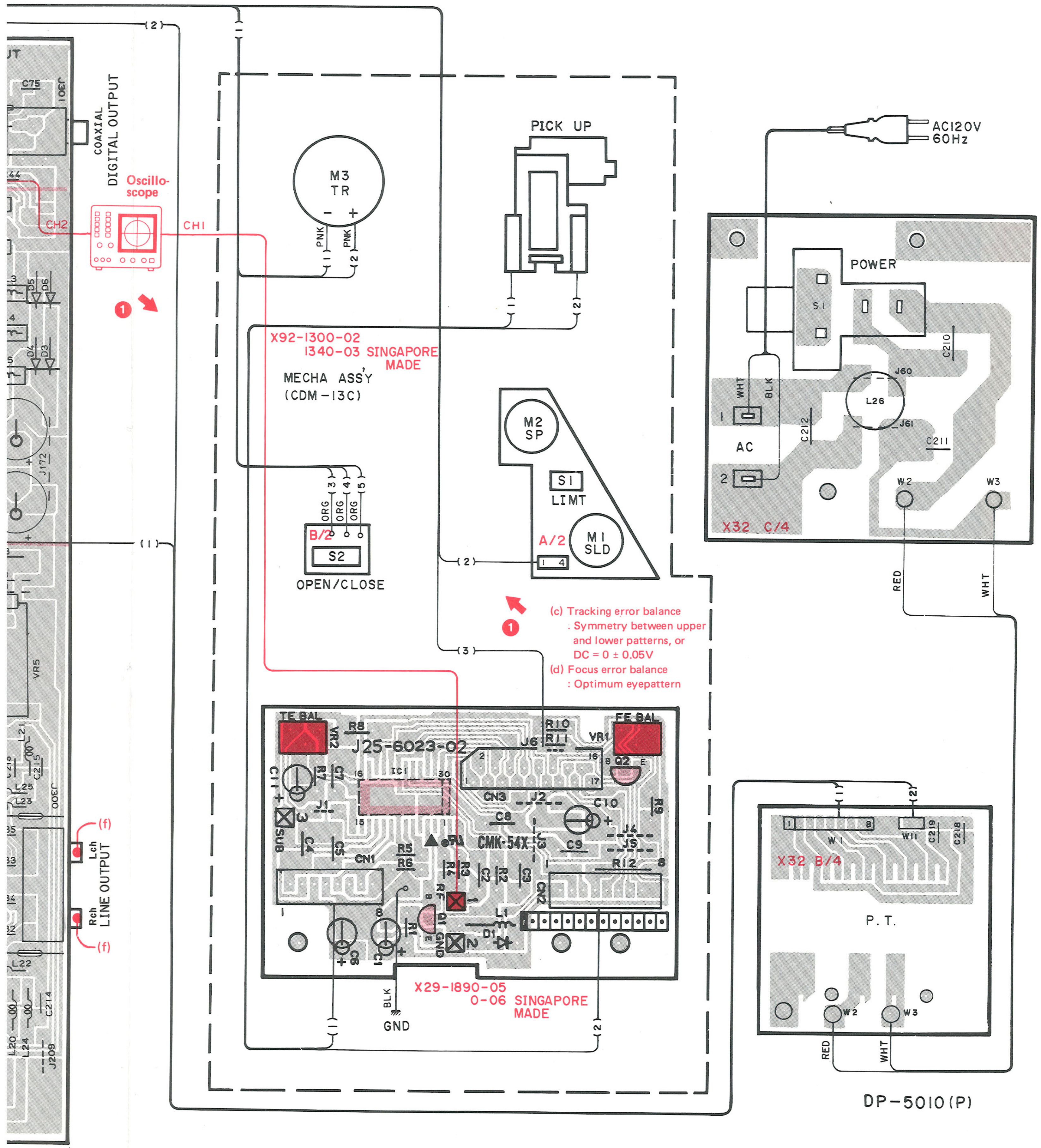

5 pin
5 broche
5 Stift
L.P.F
(e) TRACKING GAIN
AC Voltmeter
Voltmétre CA
Wechselstrom-Voltmeter
AG
AC Voltmeter
Voltmétre CA
Wechselstrom-Voltmeter
Osilloscope
Oszilloskop
CN5
4 pin
4 broche
4 Stift
2 pin
2 broche
2 Stift
1 pin
1 broche
1 Stift
50mVrms
L.P.F
(e) FOCUS GAIN
FOCUS GAIN
GAIN DE MISE AU POINT
FOKUSVERSTÄRKUNG
1.0kHz 0.5Vrms
TRACKING GAIN
GAIN D' ALIGNMENT
SPURHALTEVERSTÄRKUNG
2.0kHz 0.5Vrms

(f) Line output


LINE OUTPUT
FIXED
VARIABLE
R
L
DIGITAL OUTPUT
COAXIAL
AC Voltmeter
Voltmétre CA
Wechselstrom-Voltmeter
2.0Vrms

PC BOARD (COMPONENT SIDE VIEW)


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
W02 REMOTE SENSOR
X25-3510-00 A/2
3620-00 SINGAPORE MADE
TK-4374
OPN/CLS
VOL.DOWN
VOL.UP
TRACK
PRGM
TIME
CHECK
SINGLE
CLEAR
SPACE
STOP
EDIT
TIME DISP
REPEAT
PLAY/PAUSE
DOWN
UP
FB
FF
FRONT
PHONES
J100
X25 B/2
ORG
PNK
CN2
(e)
PICK UP SERVO
X32-1360-11 A/4
1420-50 SINGAPORE MADE
DIGITAL OUT
COAXIAL DIGITAL OUTPUT
Oscillo-scope
CH1
CH2
POWER SUPPLY
SYSTEM CONTROL
EFM DEC
DAC
LEVEL
RMUTE
Frequency counter
(b) VCO : 4.32MHz
IC16
IC18
IC20
IC10
IC15
IC14
IC13
IC19
CN4
CN1
CN7
CMK-77X
(1)
(2)
(3)
(f)
Lch
Rch
LINE OUTPUT
TEST
GND
PLCK


COAXIAL
DIGITAL OUTPUT
Oscillo-
scope
CH2
CH1
1
PICK UP
M3
TR
PNK
PNK
AC120V
60Hz
POWER
X92-1300-02
1340-03 SINGAPORE
MADE
MECHA ASS'Y
(CDM-13C)
ORG
ORG
ORG
B/2
S2
OPEN/CLOSE
M2
SP
S1
LIMT
A/2
M1
SLD
WHT
BLK
AC
L26
J60
J61
C210
C211
C212
W2
W3
X32 C/4
RED
WHT
TE BAL
FE BAL
R8
VR2
VR1
J25-6023-02
J6
R10
R11
IC1
CN3
J2
C10
C8
CMK-54X
C9
J4
J5
R12
CN1
R5
R6
J1
SUB
C4
C5
C6
C11
R1
R2
R3
R4
D1
Q1
Q2
GND
BLK
X29-1890-05
0-06 SINGAPORE
MADE
W1
W11
C219
C218
X32 B/4
P. T.
Lch
Rch
LINE OUTPUT
(f)
VR5
J301
J300
J209
C75
C214
C215
L20
L21
L22
L24
L25

(c) Tracking error balance
: Symmetry between upper and lower patterns, or DC = 0 ± 0.05V
(d) Focus error balance
: Optimum eyepattern

DP-5010(P)

Refer to the schematic diagram for the values of resistors and capacitors.

(X32-136X-XX)
(X32-142X-XX)

IC1

1	5.2V
2~4	2.4V
5	5.2V
6	2.4V
7	0V
8	2.4V
9	5.2V
10,11	2.4V
12	5.1V
13	2.3V
14	5.2V

IC2

4	–8.2V
5,6	0V
7	–0.6V
8	8.2V

IC3

4	–8.2V
5,6	0V
7	0.5V
8	8.2V

IC4

1	7.7V
2,3	0.4V
4	–8.2V
4	2.9V
5~7	0V
8	8.2V

IC5

1	7.8V
2,3	0.4V
4	–8.2V
5~7	0V
8	8.2V

IC6

1	3.2V
2,3	0V
4	–8.2V
5,6	4.9V
7	–3.5V
8	8.2V

IC7,8

1	–5.0V
2	0V
3	5.0V
4	0V
5	1.3V
6	3.7V
7	0V
8	–5.0V
9~13	0V
15	1.8V
16	5.0V

IC9

1	–1.2V
2,3	0V
4	–5.0V
5,6	5.0V
7	4.5V
8	8.2V

IC10

1~4	0V
5	5.1V
6	0V
7~11	5.1V
12,13	0V
14	4.3V
15	5.1V
16	0V
17	–4.9V
18	0.6V
19,20	0V
21	–0.4V
22	0V
23	–0.6V
24,25	0V
26	5.1V
27~30	0V

IC11

1	0V
2,3	2.5V
4	–11.0V
5~7	0V
8	10.3V

IC12

4	–11.3V
5,6	5.0V
7	5.6V
8	10.3V

IC13

7	0V
13	1.4V
14	5.0V

IC14

1	0V
2	2.0V
3	5.1V
4,5	0V
6	1.4V
7	2.9V
8	0V
9	0.4V
10~17	5.1V
18,19	0V
20	2.5V
21	0V
22	5.1V
23,24	0V
25	3.7V
26	1.0V
27,28	2.5V

IC15

1	0.8V
2,3	0V
4	–9.8V
5~7	0V
8	9.5V

IC16

1~4	–3.0V
5	5.1V
6	2.5V
7,8	0V
9	5.1V
10~12	0V
13	5.1V
14	0V
15	5.1V
16~18	0V
19	5.1V
20~24	0V
25~28	5.1V
29	0V
30	1.6V
31	2.9V
32	0V
33	1.5V
34	2.4V
35~38	0V
39	5.1V
40~50	–27.5V
51,52	0V
53	4.5V
54	–21.4V
55	–14.8V
56	–30.5V
57	–5.1V
58	–18.2V
59	–6.5V
60	–27.1V
61	–30.2V
62,63	–9.2V
64	5.1V

IC19

7	0V
9	3.7V
10	5.0V
12	2.5V
13,14	5.0V

IC20

1~4	0V
20~24	0V
25	2.4V
26	0V
27	5.1V
28,29	0V
30,31	0.6V
32	2.4V
33	5.2V
34	2.6V
36	2.1V
37	4.2V
38~40	2.4V

IC21

1	10.3V
2	0V
3	5.0V

IC22

1~3	0V
4	–9.7V
5,6	0V
7	0.5V
8	9.5V

	B	C	E
Q1	0.7V	–9.8V	0.2V
Q2	0.7V	9.5V	0.2V
Q3	0V	9.5V	–
Q4	0V	–9.7V	–
Q5	0V	0.6V	0V
Q8	4.5V	5.1V	5.1V
Q9	0.6V	2.4V	0V
Q10	0V	–31.0V	–5.0V
Q11	–31.0V	–38.1V	–30.4V
Q12	–0.65V	–5.6V	0V
Q13,14	–5.6V	–11.3V	–5.0V
Q15	0.7V	0V	0V
Q16	0V	5.0V	0V
Q17	–	–	8.2V
Q18	8.8V	14.7V	8.2V
Q19	0.7V	14.7V	0V
Q20	0.7V	14.7V	–
Q21	–0.7V	–14.5V	0V
Q22	–0.7V	–14.5V	–
Q30	–8.8V	–14.3V	–8.2V
Q31	–	10.3V	0V
Q32	–	–11.3V	0V
Q33,34	0.7V	0V	–
Q35	4.5V	–	8.2V
Q36	13.8V	5.0V	14.7V
Q37	5.6V	10.5V	5.0V
Q38	5.8V	10.3V	5.2V
Q40	–13.7V	–5.0V	–14.3V

	G	S	D
Q6,7	0V	0V	0V

Q41

1	9.8V
2~4	0V
5	–9.9V
6~8	0V

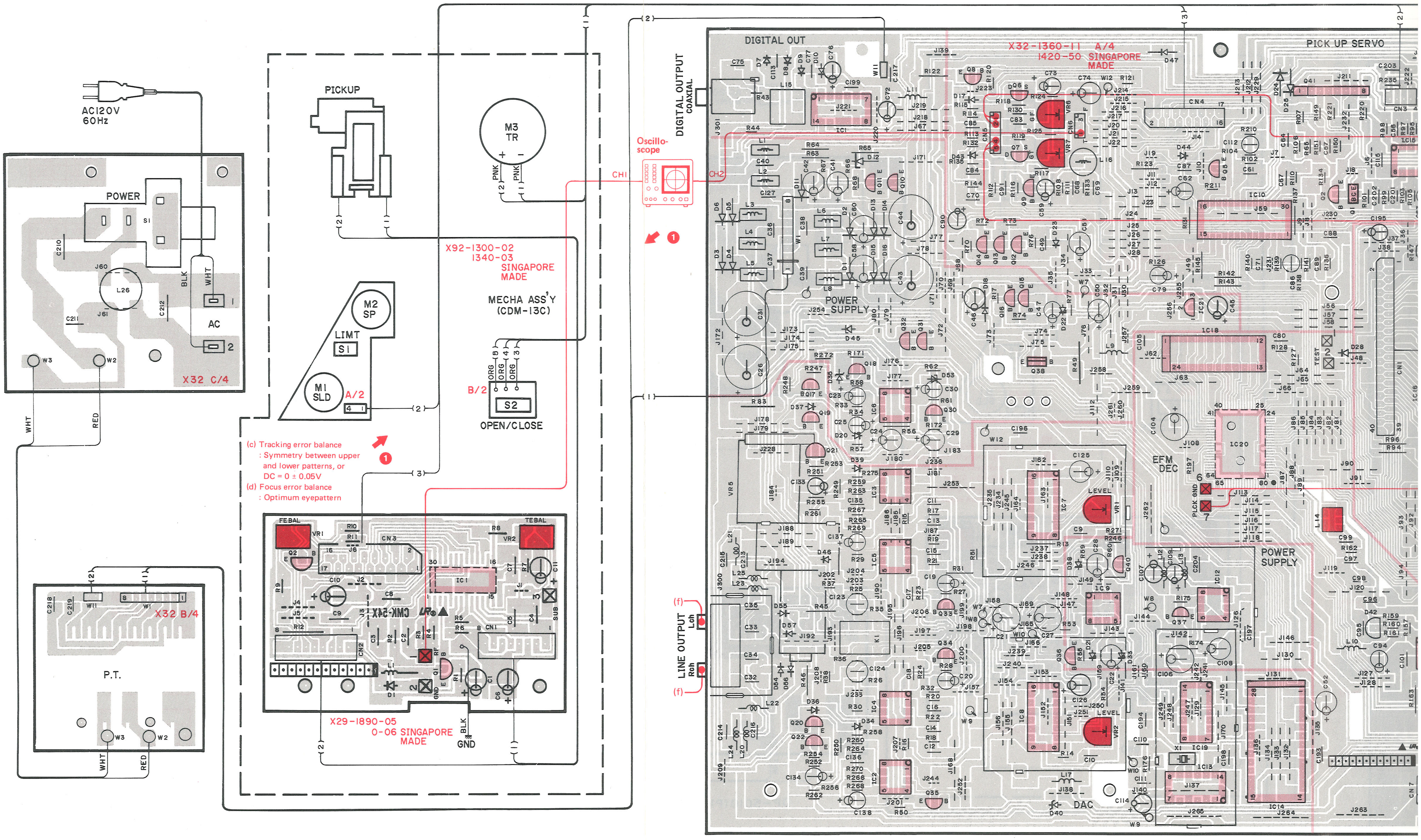
(X25-3510-00)
(X25-3620-00)

IC1

1~6	0V
7	2.4V
8	0V
9	4.8V

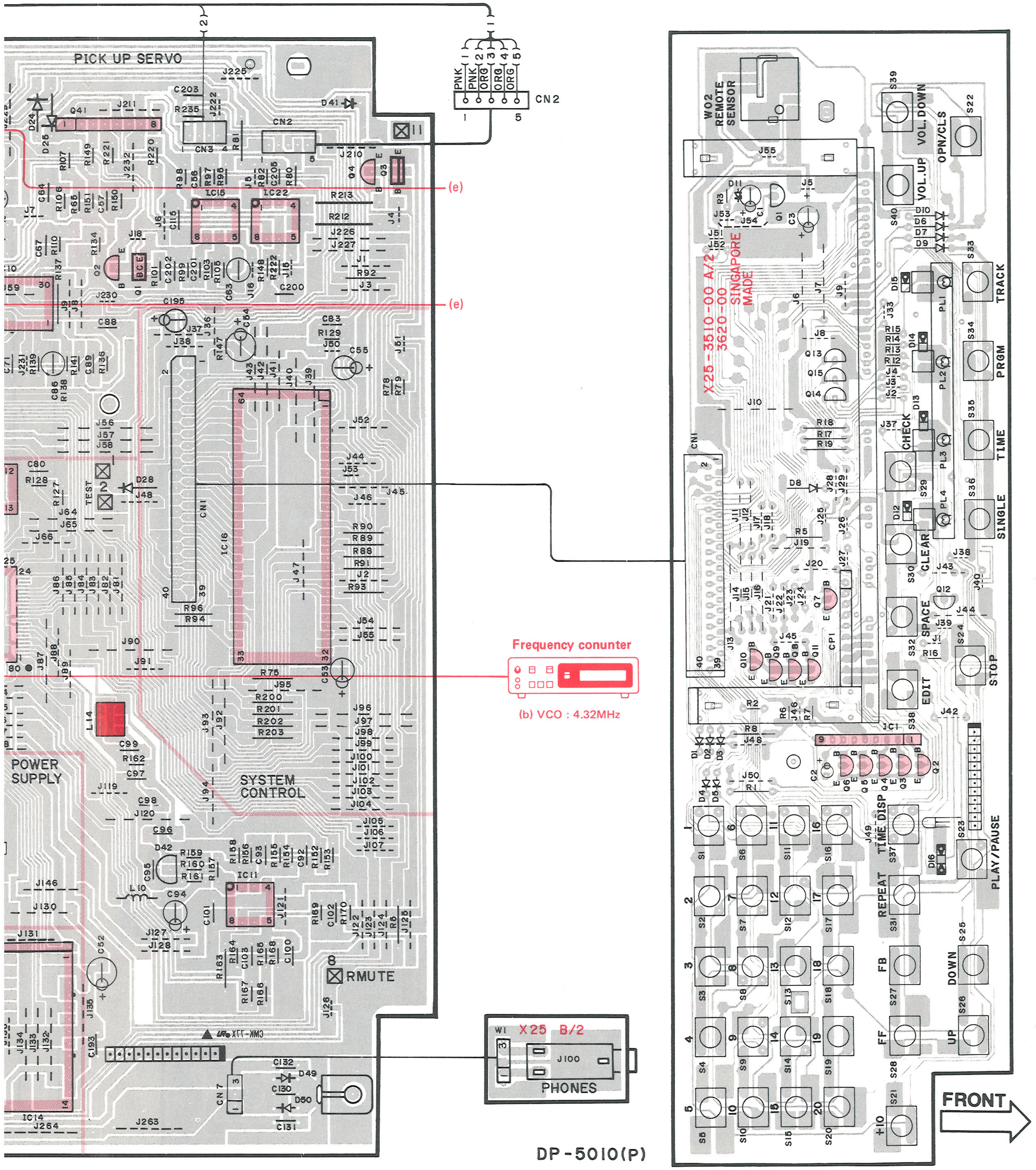
	B	C	E
Q2~6	0V	4.8V	4.8V
Q7~11	–26.5V	4.8V	–25.7V

PC BOARD (FOIL SIDE VIEW)


(c) Tracking error balance
: Symmetry between upper and lower patterns, or DC = 0 ± 0.05V
(d) Focus error balance
: Optimum eyepattern

AC120V 60Hz
POWER
X32 C/4
PICKUP
M3 TR
M2 SP
LIMT
S1
M1 SLD
A/2
X92-1300-02 1340-03 SINGAPORE MADE
MECHA ASS'Y (CDM-13C)
B/2
S2
OPEN/CLOSE
X32 B/4
P.T.
WHT
RED
FEBAL
TEBAL
VR1
VR2
CN3
IC1
CN1
CNK-24X
X29-1890-05 0-06 SINGAPORE MADE
GND
BLK
DIGITAL OUTPUT COAXIAL
Oscillo-scope
CH1
CH2
DIGITAL OUT
X32-1360-11 A/4 1420-50 SINGAPORE MADE
PICK UP SERVO
POWER SUPPLY
EFM DEC
IC20
LEVEL
DAC
LINE OUTPUT Lch Rch
(f)
TEST
PLCK GND
IC14
IC18
CN4
CN1
CN3

Refer to the schematic diagram for the values of resistors and capacitors.


PICK UP SERVO
CN2
PNK
ORG
SYSTEM CONTROL
POWER SUPPLY
RMUTE
TEST
(e)
Frequency conunter
(b) VCO : 4.32MHz
X25 B/2
J100
PHONES
X25-3510-00 A/2
3620-00
SINGAPORE MADE
W02 REMOTE SENSOR
VOL.DOWN
VOL.UP
OPN/CLS
TRACK
PRGM
TIME
SINGLE
CHECK
CLEAR
SPACE
EDIT
STOP
TIME DISP
PLAY/PAUSE
REPEAT
FB
FF
DOWN
UP
+10
FRONT
DP-5010(P)

(X32-136X-XX)
(X32-142X-XX)

IC1

1	5.2V
2~4	2.4V
5	5.2V
6	2.4V
7	0V
8	2.4V
9	5.2V
10,11	2.4V
12	5.1V
13	2.3V
14	5.2V

IC2

4	–8.2V
5,6	0V
7	–0.6V
8	8.2V

IC3

4	–8.2V
5,6	0V
7	0.5V
8	8.2V

IC4

1	7.7V
2,3	0.4V
4	–8.2V
4	2.9V
5~7	0V
8	8.2V

IC5

1	7.8V
2,3	0.4V
4	–8.2V
5~7	0V
8	8.2V

IC6

1	3.2V
2,3	0V
4	–8.2V
5,6	4.9V
7	–3.5V
8	8.2V

IC7,8

1	–5.0V
2	0V
3	5.0V
4	0V
5	1.3V
6	3.7V
7	0V
8	–5.0V
9~13	0V
15	1.8V
16	5.0V

IC9

1	–1.2V
2,3	0V
4	–5.0V
5,6	5.0V
7	4.5V
8	8.2V

IC10

1~4	0V
5	5.1V
6	0V
7~11	5.1V
12,13	0V
14	4.3V
15	5.1V
16	0V
17	–4.9V
18	0.6V
19,20	0V
21	–0.4V
22	0V
23	–0.6V
24,25	0V
26	5.1V
27~30	0V

IC11

1	0V
2,3	2.5V
4	–11.0V
5~7	0V
8	10.3V

IC12

4	–11.3V
5,6	5.0V
7	5.6V
8	10.3V

IC13

7	0V
13	1.4V
14	5.0V

IC14

1	0V
2	2.0V
3	5.1V
4,5	0V
6	1.4V
7	2.9V
8	0V
9	0.4V
10~17	5.1V
18,19	0V
20	2.5V
21	0V
22	5.1V
23,24	0V
25	3.7V
26	1.0V
27,28	2.5V

IC15

1	0.8V
2,3	0V
4	–9.8V
5~7	0V
8	9.5V

IC16

1~4	–3.0V
5	5.1V
6	2.5V
7,8	0V
9	5.1V
10~12	0V
13	5.1V
14	0V
15	5.1V
16~18	0V
19	5.1V
20~24	0V
25~28	5.1V
29	0V
30	1.6V
31	2.9V
32	0V
33	1.5V
34	2.4V
35~38	0V
39	5.1V
40~50	–27.5V
51,52	0V
53	4.5V
54	–21.4V
55	–14.8V
56	–30.5V
57	–5.1V
58	–18.2V
59	–6.5V
60	–27.1V
61	–30.2V
62,63	–9.2V
64	5.1V

IC19

7	0V
9	3.7V
10	5.0V
12	2.5V
13,14	5.0V

IC20

1~4	0V
20~24	0V
25	2.4V
26	0V
27	5.1V
28,29	0V
30,31	0.6V
32	2.4V
33	5.2V
34	2.6V
36	2.1V
37	4.2V
38~40	2.4V

IC21

1	10.3V
2	0V
3	5.0V

IC22

1~3	0V
4	–9.7V
5,6	0V
7	0.5V
8	9.5V

	B	C	E
Q1	0.7V	–9.8V	0.2V
Q2	0.7V	9.5V	0.2V
Q3	0V	9.5V	–
Q4	0V	–9.7V	–
Q5	0V	0.6V	0V
Q8	4.5V	5.1V	5.1V
Q9	0.6V	2.4V	0V
Q10	0V	–31.0V	–5.0V
Q11	–31.0V	–38.1V	–30.4V
Q12	–0.65V	–5.6V	0V
Q13,14	–5.6V	–11.3V	–5.0V
Q15	0.7V	0V	0V
Q16	0V	5.0V	0V
Q17	–	–	8.2V
Q18	8.8V	14.7V	8.2V
Q19	0.7V	14.7V	0V
Q20	0.7V	14.7V	–
Q21	–0.7V	–14.5V	0V
Q22	–0.7V	–14.5V	–
Q30	–8.8V	–14.3V	–8.2V
Q31	–	10.3V	0V
Q32	–	–11.3V	0V
Q33,34	0.7V	0V	–
Q35	4.5V	–	8.2V
Q36	13.8V	5.0V	14.7V
Q37	5.6V	10.5V	5.0V
Q38	5.8V	10.3V	5.2V
Q40	–13.7V	–5.0V	–14.3V

	G	S	D
Q6,7	0V	0V	0V

Q41

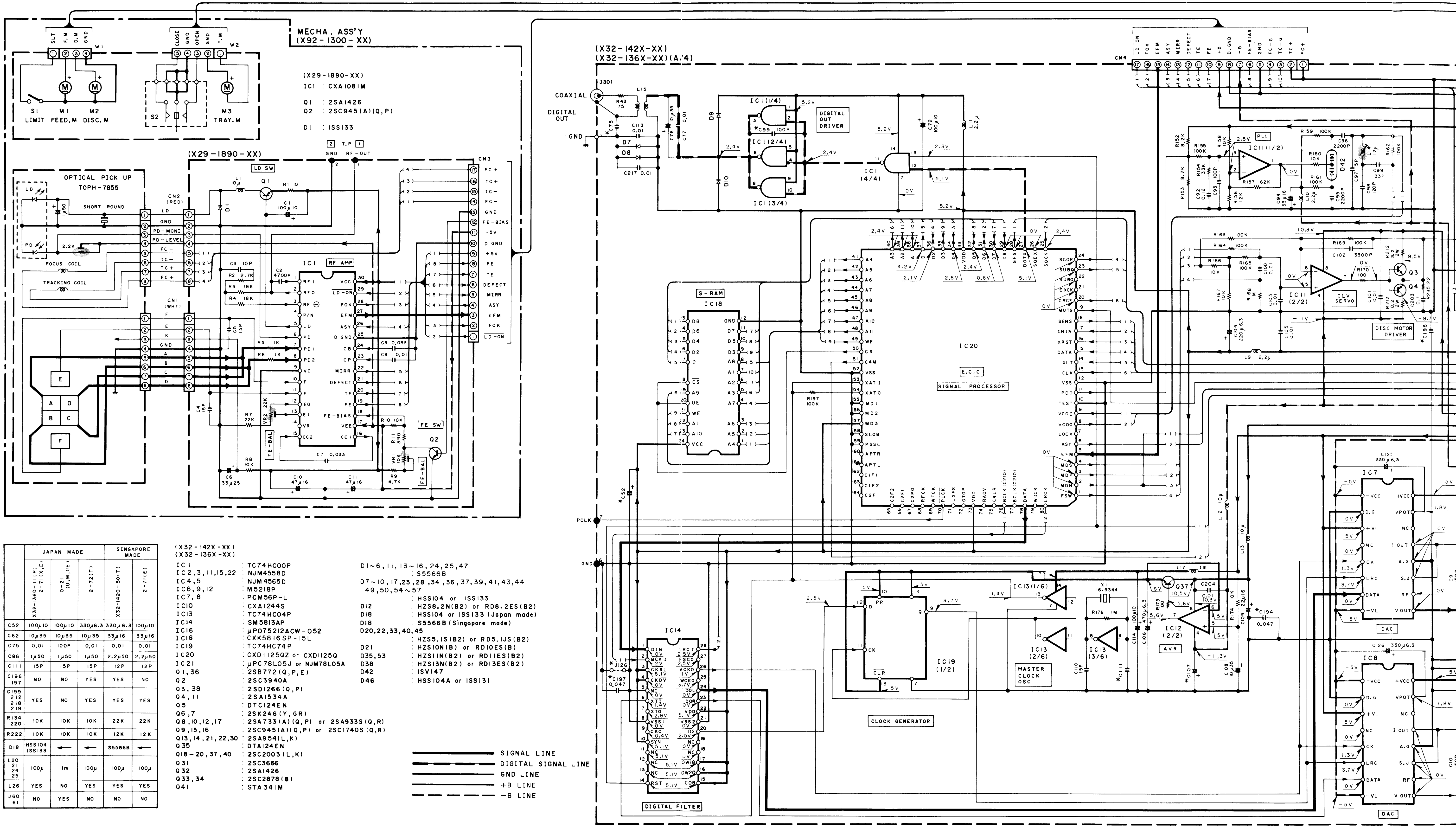
1	9.8V
2~4	0V
5	–9.9V
6~8	0V

(X25-3510-00)
(X25-3620-00)

IC1

1~6	0V
7	2.4V
8	0V
9	4.8V

	B	C	E
Q2~6	0V	4.8V	4.8V
Q7~11	–26.5V	4.8V	–25.7V


MECHA. ASS'Y
(X92-1300-XX)
SLT
F.M
D.M
GND
W1
CLOSE
GND
OPEN
GND
T.M
W2
S1
M1
M2
LIMIT
FEED.M
DISC.M
S2
M3
TRAY.M
(X29-1890-XX)
IC1 : CXA1081M
Q1 : 2SA1426
Q2 : 2SC945(A)(Q,P)
D1 : ISS133
OPTICAL PICK UP
TOPH-7855
LD
PD
SHORT ROUND
FOCUS COIL
TRACKING COIL
CN2 (RED)
CN1 (WHT)
PD-MONI
PD-LEVEL
FC−
TC−
TC+
FC+
E
A
D
B
C
F
LD SW
RF AMP
IC1
FE SW
TE-BAL
FE-BAL
CN3
FE-BIAS
D GND
DEFECT
MIRR
ASY
EFM
FOK
LD-ON
T.P
GND
RF-OUT
(X32-142X-XX)
(X32-136X-XX)(A/4)
COAXIAL
DIGITAL OUT
GND
J301
DIGITAL OUT DRIVER
IC1(1/4)
IC1(2/4)
IC1(3/4)
IC1(4/4)
S-RAM
IC18
IC20
E.C.C
SIGNAL PROCESSOR
CN4
PLL
IC11(1/2)
IC11(2/2)
CLV SERVO
DISC MOTOR DRIVER
IC7
IC8
DAC
IC14
DIGITAL FILTER
IC19 (1/2)
CLOCK GENERATOR
IC13(1/6)
IC13(2/6)
IC13(3/6)
MASTER CLOCK OSC
X1 16.9344
IC12 (2/2)
AVR
PCLK
GND
5V
-5V
1.8V

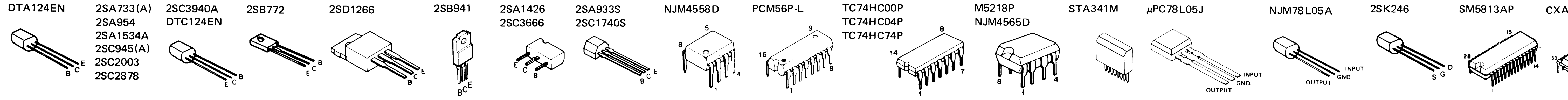
	JAPAN MADE			SINGAPORE MADE	
	X32-1360-11(P) 2-71(X,E)	0-21 (U,M,UE)	2-72(T)	X32-1420-50(T)	2-71(E)
C52	100µ10	100µ10	330µ6.3	330µ6.3	100µ10
C62	10µ35	10µ35	10µ35	33µ16	33µ16
C75	0.01	100P	0.01	0.01	0.01
C86	1µ50	1µ50	1µ50	2.2µ50	2.2µ50
C111	15P	15P	15P	12P	12P
C196 197	NO	NO	YES	YES	NO
C199 212 218 219	YES	NO	YES	YES	YES
R134 220	10K	10K	10K	22K	22K
R222	10K	10K	10K	12K	12K
D18	HSS104 ISS133	←	←	S5566B	←
L20 21 24 25	100µ	1m	100µ	100µ	100µ
L26	YES	NO	YES	YES	YES
J60 61	NO	YES	NO	NO	NO

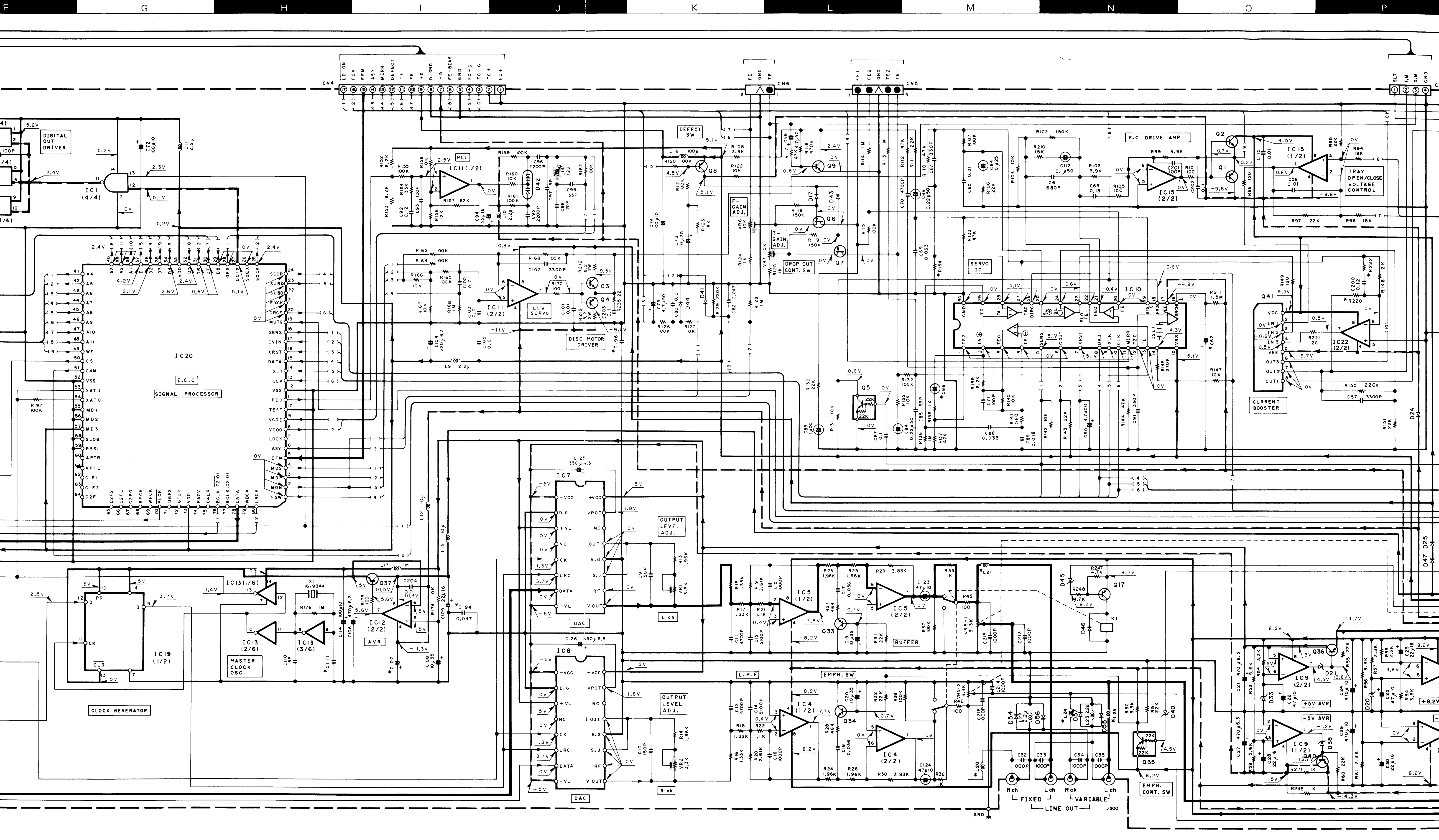
(X32-142X-XX)
(X32-136X-XX)

IC1	TC74HC00P
IC2,3,11,15,22	NJM4558D
IC4,5	NJM4565D
IC6,9,12	M5218P
IC7,8	PCM56P-L
IC10	CXA1244S
IC13	TC74HC04P
IC14	SM5813AP
IC16	µPD75212ACW-052
IC18	CXK5816SP-15L
IC19	TC74HC74P
IC20	CXD1125QZ or CXD1125Q
IC21	µPC78L05J or NJM78L05A
Q1,36	2SB772(Q,P,E)
Q2	2SC3940A
Q3,38	2SD1266(Q,P)
Q4,11	2SA1534A
Q5	DTC124EN
Q6,7	2SK246(Y,GR)
Q8,10,12,17	2SA733(A)(Q,P) or 2SA933S(Q,R)
Q9,15,16	2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q13,14,21,22,30	2SA954(L,K)
Q35	DTA124EN
Q18~20,37,40	2SC2003(L,K)
Q31	2SC3666
Q32	2SA1426
Q33,34	2SC2878(B)
Q41	STA341M

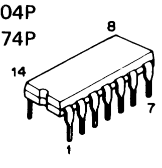
D1~6,11,13~16,24,25,47	S5566B
D7~10,17,23,28,34,36,37,39,41,43,44 49,50,54~57	HSS104 or ISS133
D12	HZS8.2N(B2) or RD8.2ES(B2)
D18	HSS104 or ISS133 (Japan made)
D18	S5566B (Singapore made)
D20,22,33,40,45	HZS5.1S(B2) or RD5.1JS(B2)
D21	HZS10N(B) or RD10ES(B)
D35,53	HZS11N(B2) or RD11ES(B2)
D38	HZS13N(B2) or RD13ES(B2)
D42	ISV147
D46	HSS104A or ISS131

SIGNAL LINE
DIGITAL SIGNAL LINE
GND LINE
+B LINE
−B LINE

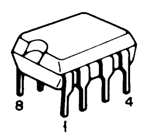

DTA124EN
2SA733(A)
2SA954
2SA1534A
2SC945(A)
2SC2003
2SC2878
2SC3940A
DTC124EN
2SB772
2SD1266
2SB941
2SA1426
2SC3666
2SA933S
2SC1740S
NJM4558D
PCM56P-L
TC74HC00P
TC74HC04P
TC74HC74P
M5218P
NJM4565D
STA341M
µPC78L05J
NJM78L05A
2SK246
SM5813AP
CXA
B C E
E C B
INPUT
GND
OUTPUT
S G D


F
G
H
I
J
K
L
M
N
O
P
CN4
LD ON
FOK
EFM
ASY
MIRR
DEFECT
TE
FE
+5
D.GND
-5
FE-BIAS
GND
FC-G
TC-G
TC+
FC+
CN6
CN5
DIGITAL OUT DRIVER
IC1 (4/4)
PLL
IC11(1/2)
IC11 (2/2)
CLV SERVO
DISC MOTOR DRIVER
DEFECT SW
F-GAIN ADJ.
T-GAIN ADJ.
DROP OUT CONT. SW
SERVO IC
IC10
F.C DRIVE AMP
IC15 (2/2)
IC15 (1/2)
TRAY OPEN/CLOSE VOLTAGE CONTROL
Q41
CURRENT BOOSTER
IC22 (2/2)
IC20
E.C.C
SIGNAL PROCESSOR
IC7
IC8
DAC
OUTPUT LEVEL ADJ.
Lch
Rch
IC19 (1/2)
CLOCK GENERATOR
IC13(1/6)
IC13 (2/6)
IC13 (3/6)
MASTER CLOCK OSC
X1 16.9344
IC12 (2/2)
AVR
L.P.F
IC5 (1/2)
IC5 (2/2)
BUFFER
EMPH. SW
IC4 (1/2)
IC4 (2/2)
EMPH. CONT. SW
Q35
Q17
K1
FIXED
VARIABLE
LINE OUT
J300
GND
IC9 (2/2)
IC9 (1/2)
+5V AVR
-5V AVR
+8.2V

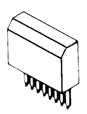
TC74HC00P
TC74HC04P
TC74HC74P



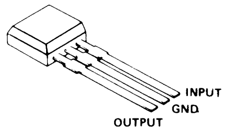
M5218P
NJM4565D



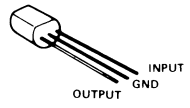
STA341M



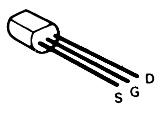
μPC78L05J


INPUT
GND
OUTPUT

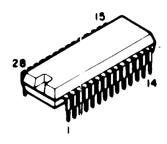
NJM78L05A


INPUT
GND
OUTPUT

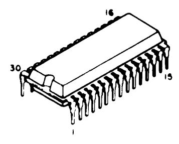
2SK246



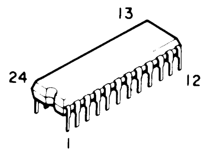
SM5813AP



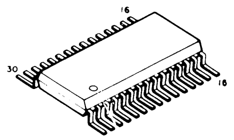
CXA1244S



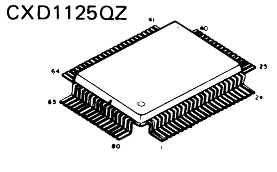
CXK5816SP-15L



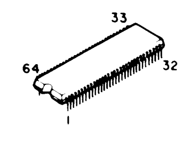
CXA1081M



CXD1125Q
CXD1125QZ



μPD75212ACW-052



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ΔIndicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

-
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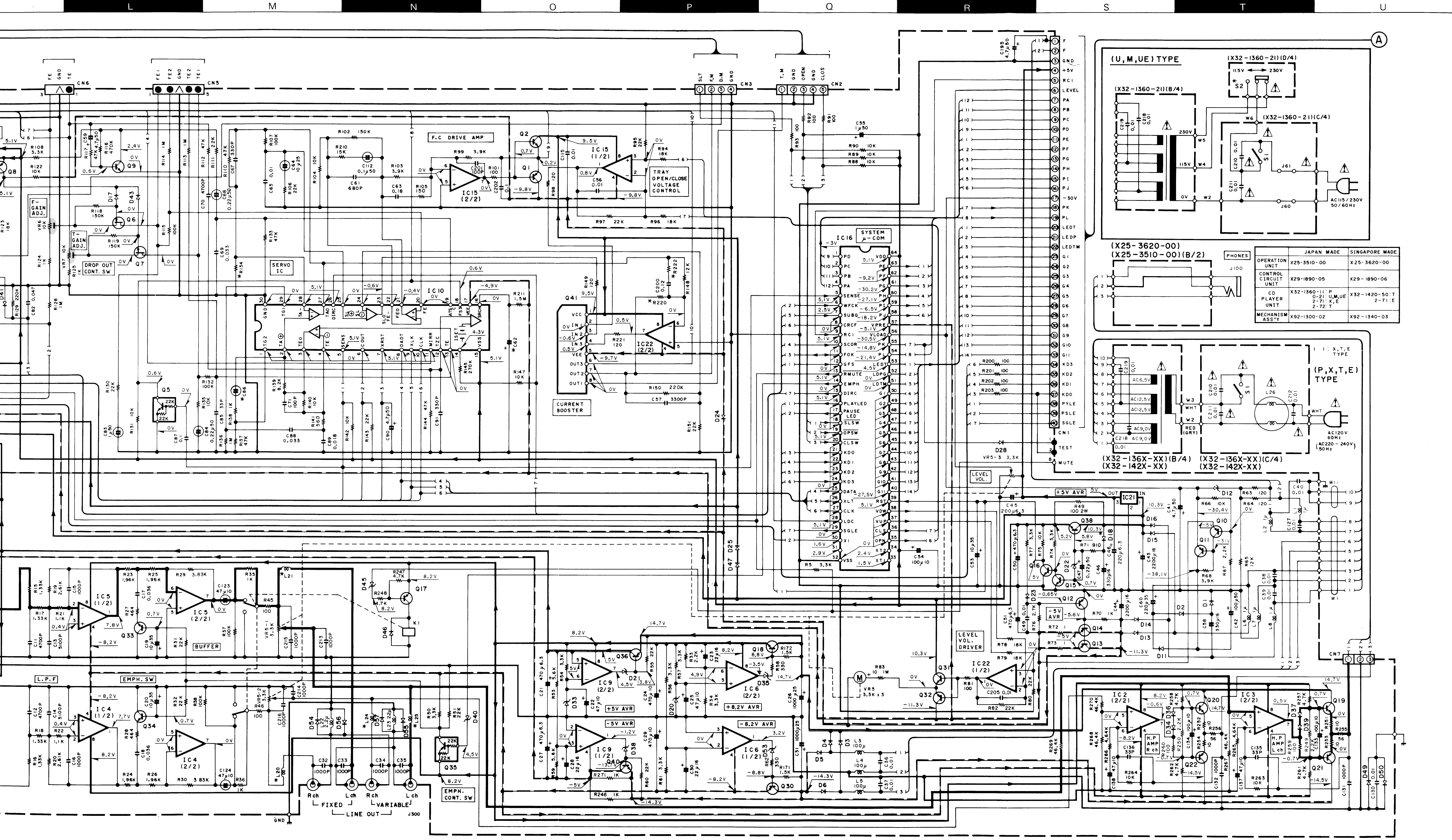
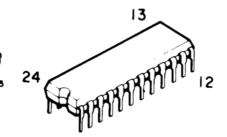

L
M
N
O
P
Q
R
S
T
U
CN6
CN5
CN3
CN2
CN1
CN7
F.C DRIVE AMP
TRAY OPEN/CLOSE VOLTAGE CONTROL
SERVO IC
IC10
IC15 (1/2)
IC15 (2/2)
IC16 SYSTEM μ-COM
IC22 (2/2)
CURRENT BOOSTER
F-GAIN ADJ.
T-GAIN ADJ.
DROP OUT CONT. SW
(U,M,UE) TYPE
(P,X,T,E) TYPE
( ) : X,T,E TYPE
(X32-1360-21)(B/4)
(X32-1360-21)(C/4)
(X32-1360-21)(D/4)
(X25-3620-00)
(X25-3510-00)(B/2)
(X32-136X-XX)(B/4)
(X32-142X-XX)
(X32-136X-XX)(C/4)
(X32-142X-XX)
PHONES
J100
AC115/230V 50/60Hz
AC120V 60Hz
(AC220 – 240V) 50Hz
LEVEL VOL.
LEVEL VOL. DRIVER
+5V AVR
-5V AVR
+8.2V AVR
-8.2V AVR
IC5 (1/2)
IC5 (2/2)
BUFFER
L.P.F
EMPH. SW
IC4 (1/2)
IC4 (2/2)
IC9 (1/2)
IC9 (2/2)
IC6 (1/2)
IC6 (2/2)
IC2 (2/2)
IC3 (2/2)
IC21
H.P AMP Rch
H.P AMP Lch
EMPH. CONT. SW
Rch
Lch
Rch
Lch
FIXED
VARIABLE
LINE OUT
J300
GND

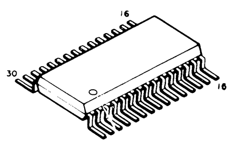
	JAPAN MADE	SINGAPORE MADE
OPERATION UNIT	X25-3510-00	X25-3620-00
CONTROL CIRCUIT UNIT	X29-1890-05	X29-1890-06
CD PLAYER UNIT	X32-1360-11 : P 0-21 : U,M,UE 2-71 : X, E 2-72 : T	X32-1420-50 : T 2-71 : E
MECHANISM ASS'Y	X92-1300-02	X92-1340-03

DP-5010 (P) (1/2)

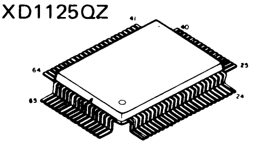
CXK5816SP-15L



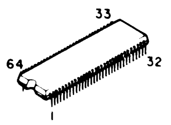
CXA1081M



CXD1125Q
CXD1125QZ


41
40
64
25
65
24
80
1

μPD75212ACW-052



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

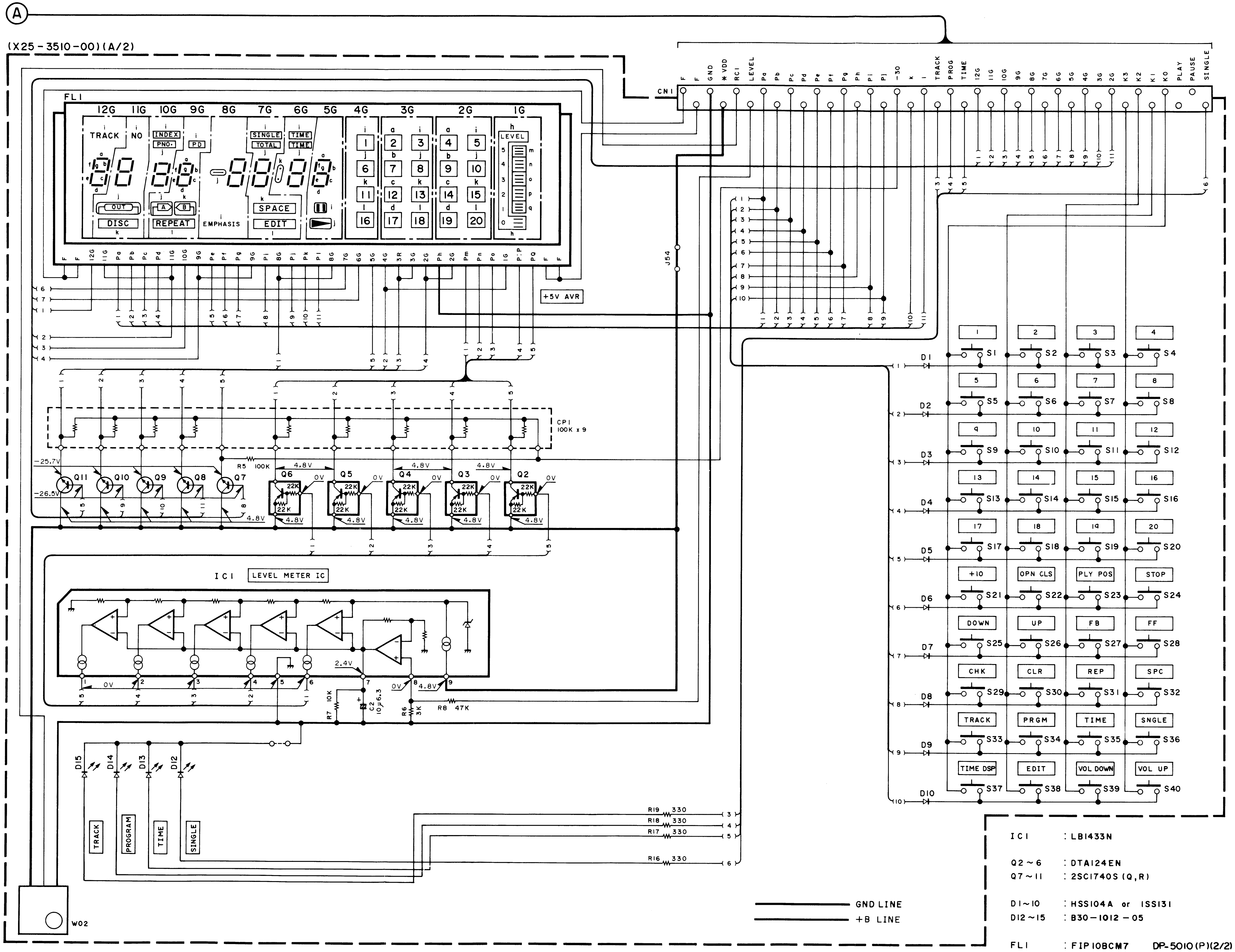
- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être measurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.

Y22-1571-01

DP-5010

KENWOOD


A
(X25-3510-00)(A/2)
FL1
12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G
TRACK
NO
INDEX
PNO.
PD
SINGLE
TOTAL
TIME
LEVEL
OUT
DISC
A
B
REPEAT
EMPHASIS
SPACE
EDIT
+5V AVR
CN1
F F GND *VDD RC1 LEVEL Pa Pb Pc Pd Pe Pf Pg Ph Pi Pj -30 k l TRACK PROG TIME 12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G K3 K2 K1 K0 PLAY PAUSE SINGLE
J54
CP1
100K x 9
R5 100K
-25.7V
-26.5V
Q11 Q10 Q9 Q8 Q7
Q6 Q5 Q4 Q3 Q2
22K
4.8V
0V
IC1
LEVEL METER IC
2.4V
R7 10K
C2 10μ6.3
R6 3K
R8 47K
D15 D14 D13 D12
TRACK
PROGRAM
TIME
SINGLE
R19 330
R18 330
R17 330
R16 330
W02
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20
S21 S22 S23 S24 S25 S26 S27 S28 S29 S30 S31 S32 S33 S34 S35 S36 S37 S38 S39 S40
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
+10
OPN CLS
PLY POS
STOP
DOWN
UP
FB
FF
CHK
CLR
REP
SPC
TRACK
PRGM
TIME
SNGLE
TIME DSP
EDIT
VOL DOWN
VOL UP
GND LINE
+B LINE

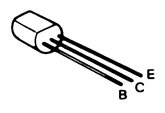
IC1 : LB1433N

Q2 ~ 6 : DTA124EN
Q7 ~ 11 : 2SC1740S (Q,R)

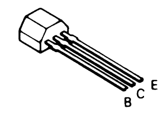
D1 ~ 10 : HSS104A or 1SS131
D12 ~ 15 : B30-1012-05

FL1 : FIP10BCM7 DP-5010(P)(2/2)

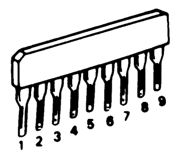
DTA124EN



2SC1740S



LB1433N



CAUTION: For continued safety, repla
ponents only with manufacturer's reco
to parts list). ⚠Indicates safety crit
reduce the risk of electric shock, leakag
measurements shall be carried out (expo
bly insulated from the supply circuit) b
returned to the customer.

- DC voltages are as measured with
voltmeter. Values may vary slightly
between individual instruments or/a
- Les tensions c.c. doivent être meas
mètre à haute impédance. Les valeu
légèrement du fait des variation
appareils et aux instruments de
- Die angegebenen Gleichspannungs
einem hochohmigen Voltmeter
schwanken die Meßwerte aufgrund
zwischen einzelnen instrumenten
geringfügig.

Y22-1571-01

DI
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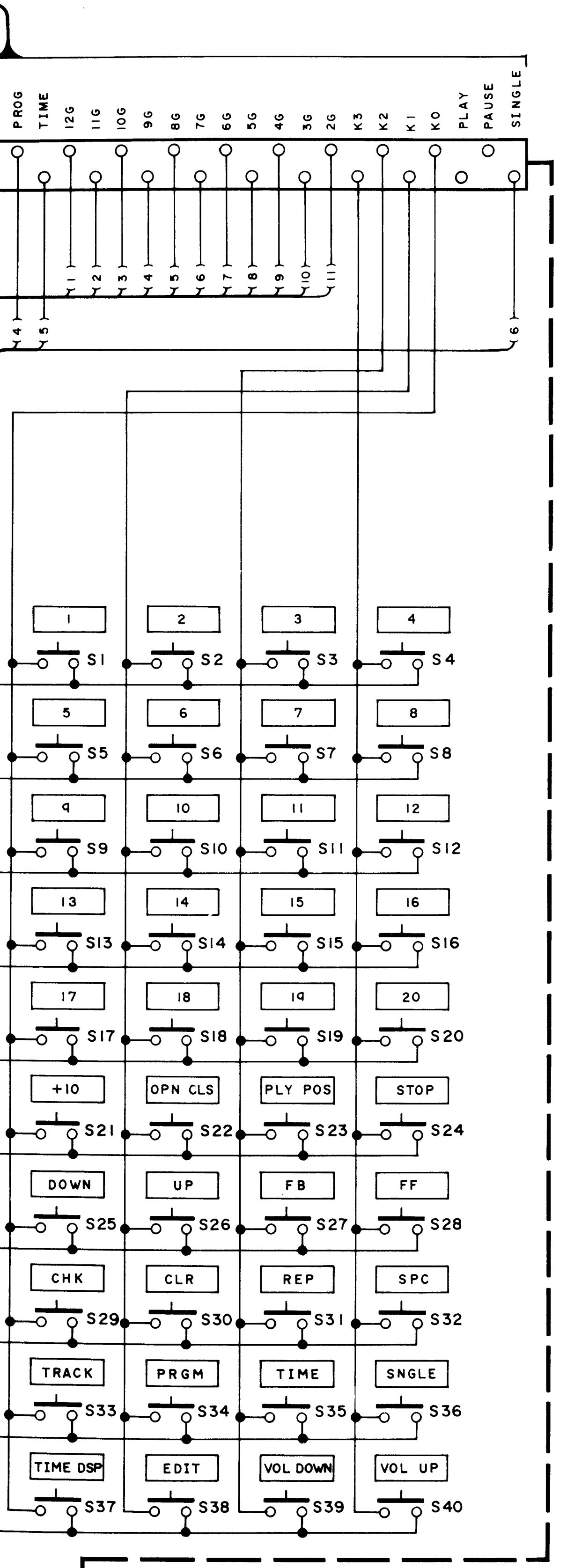

PROG
TIME
12G
11G
10G
9G
8G
7G
6G
5G
4G
3G
2G
K3
K2
K1
K0
PLAY
PAUSE
SINGLE
1 S1
2 S2
3 S3
4 S4
5 S5
6 S6
7 S7
8 S8
9 S9
10 S10
11 S11
12 S12
13 S13
14 S14
15 S15
16 S16
17 S17
18 S18
19 S19
20 S20
+10 S21
OPN CLS S22
PLY POS S23
STOP S24
DOWN S25
UP S26
FB S27
FF S28
CHK S29
CLR S30
REP S31
SPC S32
TRACK S33
PRGM S34
TIME S35
SNGLE S36
TIME DSP S37
EDIT S38
VOL DOWN S39
VOL UP S40

IC1 : LB1433N

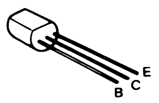
Q2 ~ 6 : DTA124EN
Q7 ~ 11 : 2SC1740S (Q, R)

D1 ~ 10 : HSS104A or 1SS131
D12 ~ 15 : B30-1012-05

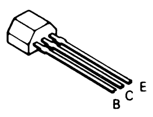
FL1 : FIP10BCM7

DP-5010 (P)(2/2)

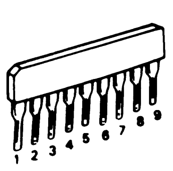
DTA124EN



2SC1740S



LB1433N



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.

Y22-1571-01

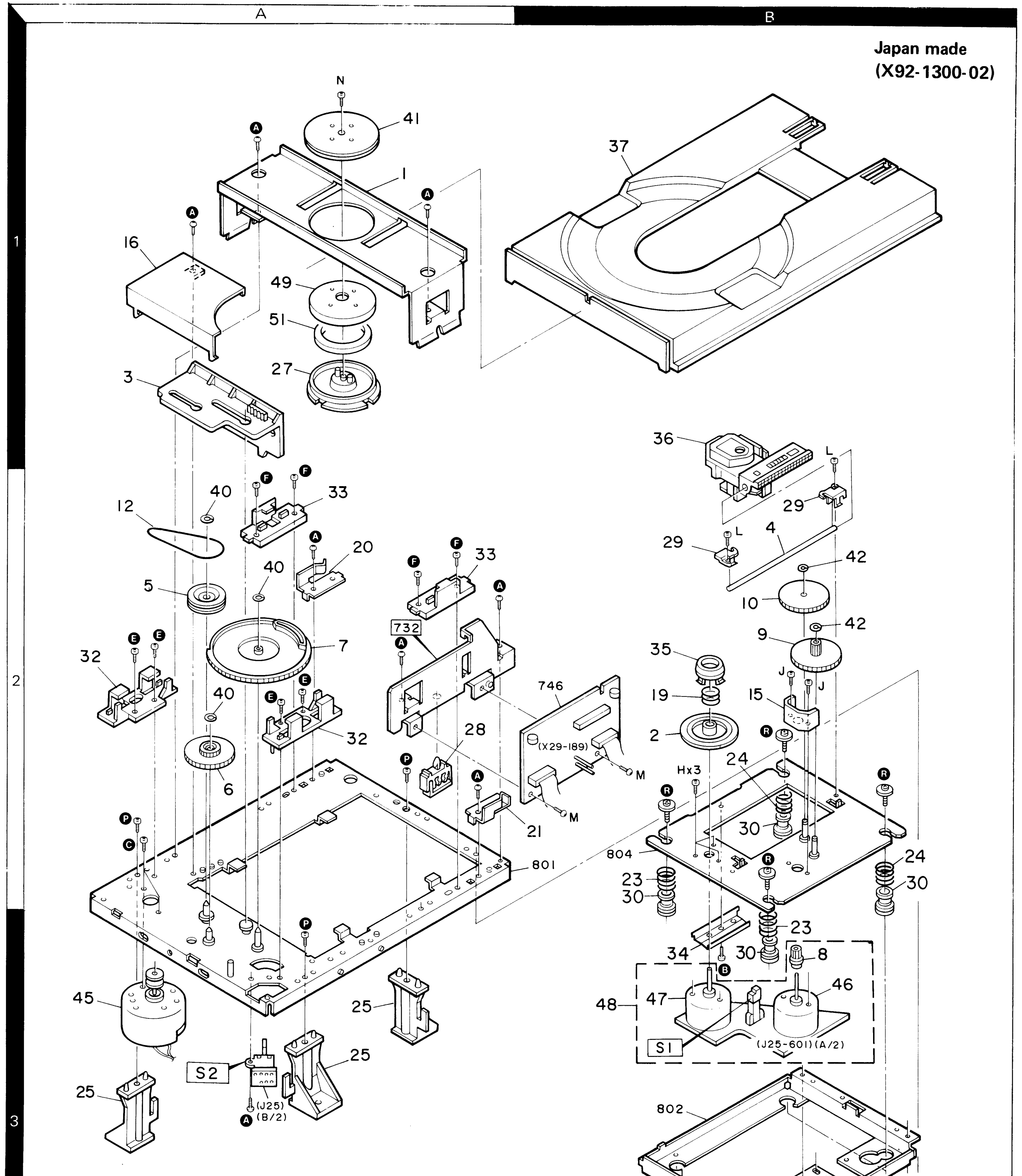
DP-5010
KENWOOD

DP-5010

DP-5010

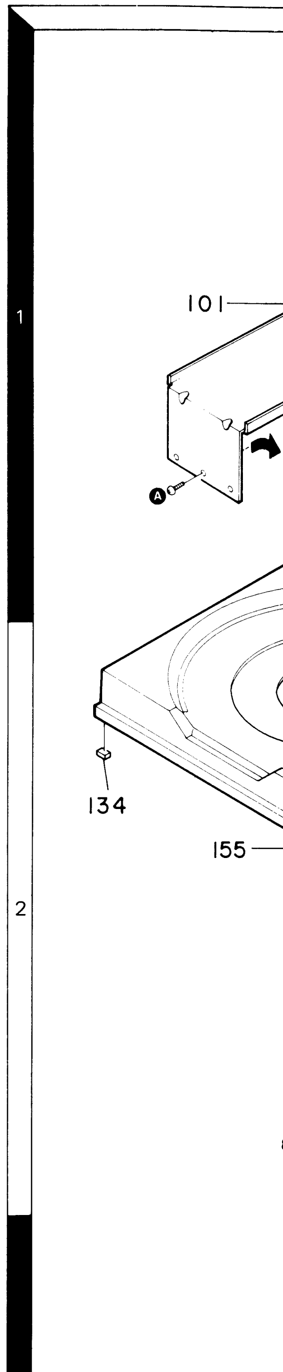
EXPLODED VIEW (MECHANISM)

Japan made
(X92-1300-02)


A
B
1
2
3
N
41
1
37
16
49
51
27
3
36
L
29
4
29
42
10
42
9
12
40
33
20
33
40
5
7
732
746
(X29-189)
M
35
19
15
2
32
40
32
28
J
R
Hx3
24
6
21
M
801
804
30
24
30
23
30
23
34
30
8
45
25
25
48
47
46
S1
(J25-601)(A/2)
S2
(J25)
(B/2)
25
802
31x2
22
31x2
17

Ⓐ			: N09-1898-15					
Ⓑ			: N09-2613-05					
Ⓒ			: N09-2627-05					
Ⓓ			: N09-2628-05	Ⓡ			: N09-1522-08
Ⓔ	ø2.6x6	(Bi-Tap)	: N86-2606-46	L	ø2x6	(Tap)	: N84-2006-46
Ⓕ	ø2x4	(Tap)	: N84-2004-46	M	ø2.6x6	(Br-Tap)	: N87-2606-46
H	M2x2.5		: N39-2025-46	N	ø2.6x6	(Bi-Tap)	: N89-2606-46
J	M2x3.5	BLK	: N39-2035-45	Ⓟ	ø3x10	(Bi-Tap)	: N89-3010-46

Parts with the exploded numbers larger than 700 are not supplied.


1
2
101
Ⓐ
134
155

Ⓐ	M2.6x6	
Ⓑ		
Ⓒ	M1.7x3	
Ⓓ	M2.6x8	
Ⓔ	M2x6	
Ⓕ		
G	M2x4	(
H	M2.6x3	(
J	ø2x4	(
K	ø2.6x5	(
L	ø3x10	(
M	ø2.6x6	
N	M2.6x8	(
P	M2x5	
Q	ø2.6x10	(

F

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are accepta-
appliance is

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dividuels.
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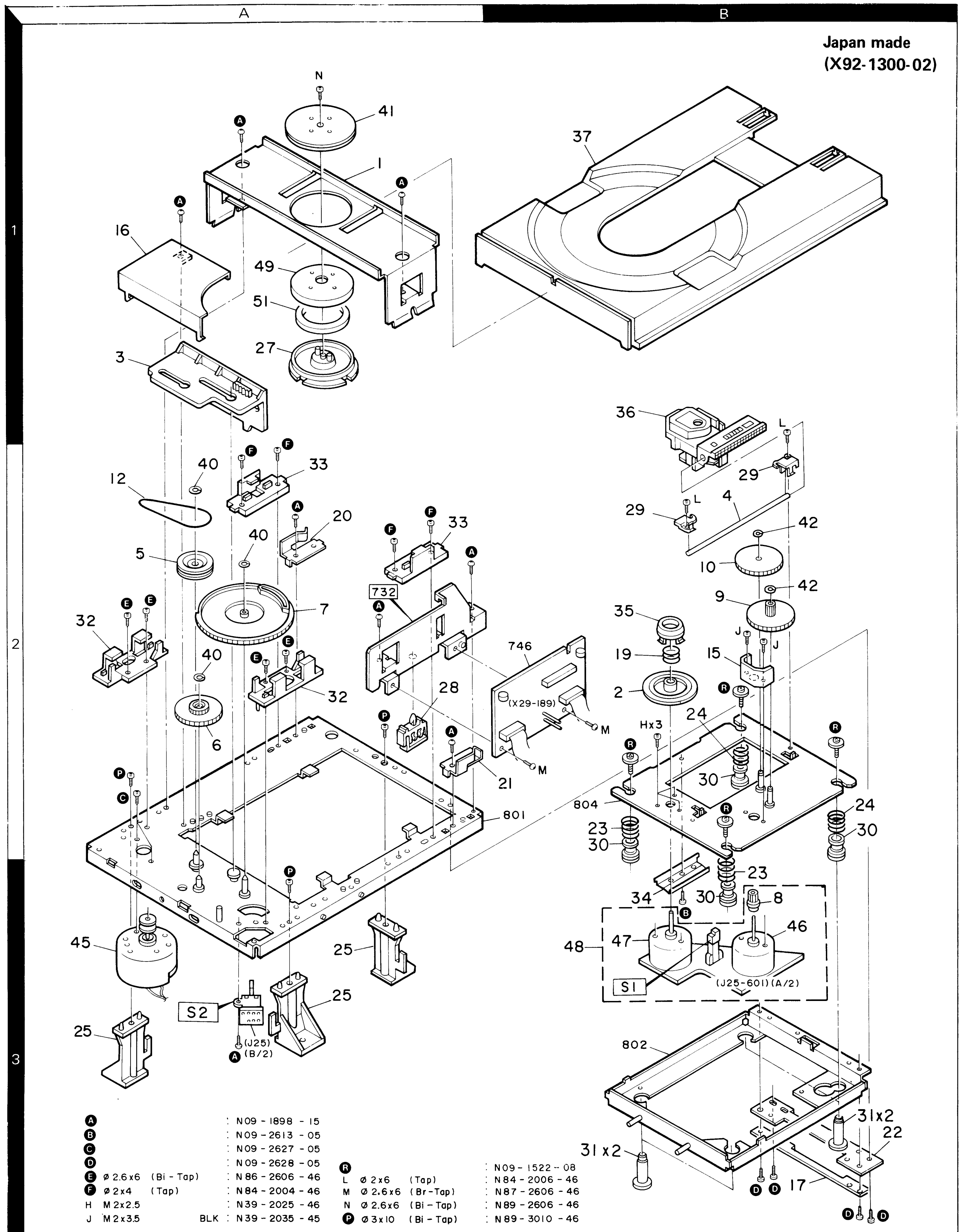
. Dabei
schieden
ten u.U.

5010
OOD

EXPLODED VIEW (MECHANISM)

Japan made
(X92-1300-02)

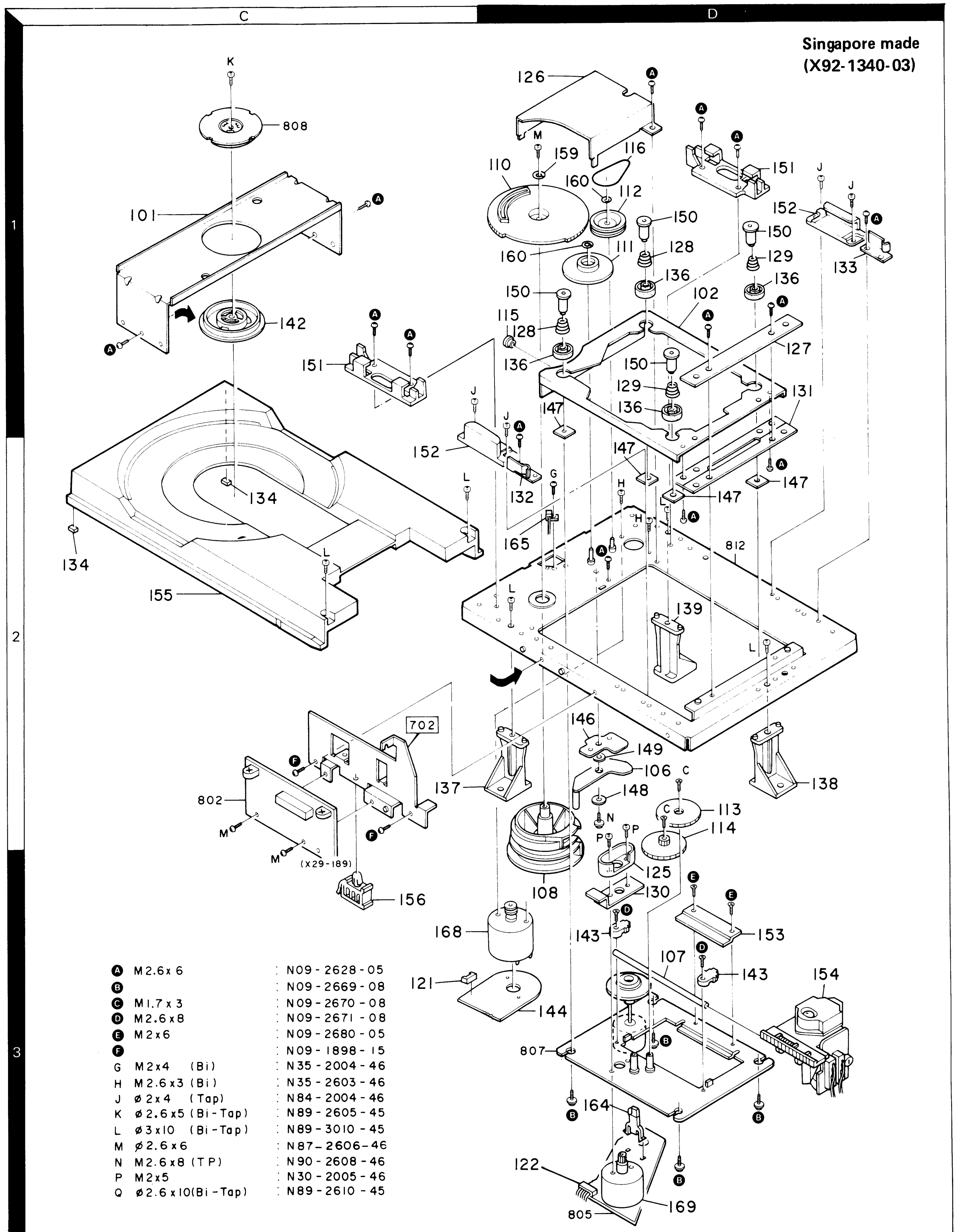

A
B
1
2
3
N
41
37
1
16
49
51
27
3
36
12
40
33
20
29
L
4
42
5
7
732
10
9
32
35
746
19
15
2
28
(X29-189)
M
6
Hx3
24
30
21
801
804
23
34
8
45
48
47
46
S1
(J25-601)(A/2)
S2
(J25)
(B/2)
25
802
31x2
22
17

Ⓐ			: N09 - 1898 - 15				
Ⓑ			: N09 - 2613 - 05				
Ⓒ			: N09 - 2627 - 05				
Ⓓ			: N09 - 2628 - 05	Ⓡ			: N09 - 1522 - 08
Ⓔ	ø 2.6x6	(Bi - Tap)	: N86 - 2606 - 46	L	ø 2x6	(Tap)	: N84 - 2006 - 46
Ⓕ	ø 2x4	(Tap)	: N84 - 2004 - 46	M	ø 2.6x6	(Br - Tap)	: N87 - 2606 - 46
H	M 2x2.5		: N39 - 2025 - 46	N	ø 2.6x6	(Bi - Tap)	: N89 - 2606 - 46
J	M 2x3.5	BLK	: N39 - 2035 - 45	Ⓟ	ø 3x10	(Bi - Tap)	: N89 - 3010 - 46

Parts with the exploded numbers larger than 700 are not supplied.

EXPLODED VIEW (MECHANISM)

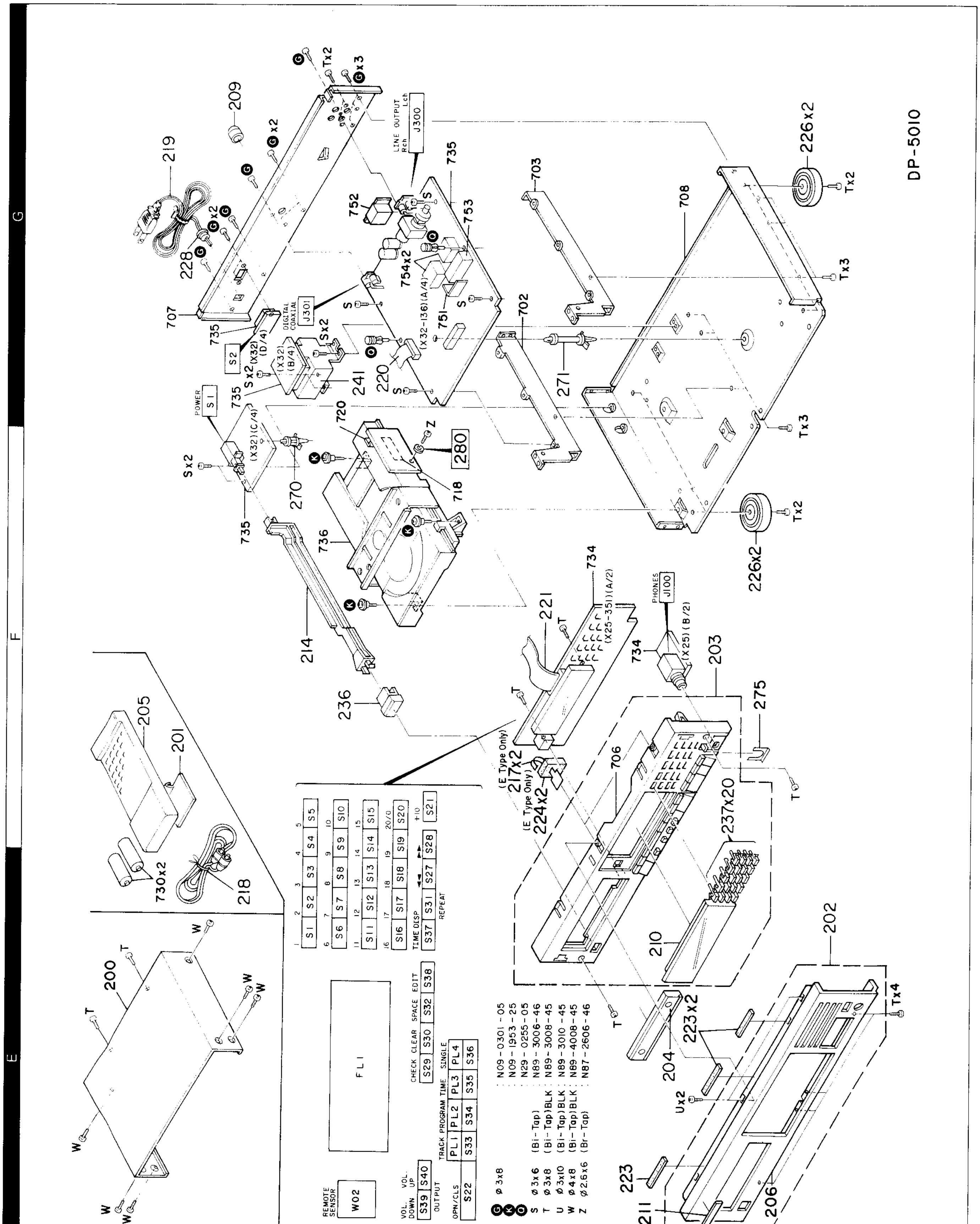
Singapore made
(X92-1340-03)


C
D
1
2
3
K
808
126
M
159
116
110
160
112
151
J
152
150
133
101
128
111
129
136
102
142
115
127
131
147
132
134
G
H
165
812
155
139
L
146
149
106
702
802
137
148
113
114
138
(X29-189)
125
130
156
108
168
143
153
107
154
121
144
807
164
122
169
805

Ⓐ	M2.6x 6		: N09 - 2628 - 05
Ⓑ			: N09 - 2669 - 08
Ⓒ	M1.7x 3		: N09 - 2670 - 08
Ⓓ	M2.6x8		: N09 - 2671 - 08
Ⓔ	M2x6		: N09 - 2680 - 05
Ⓕ			: N09 - 1898 - 15
G	M2x4	(Bi)	: N35 - 2004 - 46
H	M2.6x3	(Bi)	: N35 - 2603 - 46
J	ø 2x4	(Tap)	: N84 - 2004 - 46
K	ø 2.6x5	(Bi - Tap)	: N89 - 2605 - 45
L	ø 3x10	(Bi - Tap)	: N89 - 3010 - 45
M	ø 2.6x6		: N87 - 2606 - 46
N	M2.6x8	(TP)	: N90 - 2608 - 46
P	M2x5		: N30 - 2005 - 46
Q	ø 2.6x10	(Bi - Tap)	: N89 - 2610 - 45

Parts with the exploded numbers larger than 700 are not supplied.

EXPLODED VIEW (UNIT)


DP-5010
G
F
E
1
2
200
201
202
203
204
205
206
209
210
211
214
217x2 (E Type Only)
218
219
220
221
223
223x2
224x2 (E Type Only)
226x2
228
236
237x20
241
270
271
275
280
702
703
706
707
708
718
720
730x2
734
735
736
751
752
753
754x2
Sx2
Gx2
Gx3
Tx2
Tx3
Tx4
Ux2
LINE OUTPUT Rch Lch J300
DIGITAL COAXIAL J301
POWER S1
S2 (X32) (D/4)
(X32) (B/4)
(X32) (C/4)
(X32-136) (A/4)
(X25-351) (A/2)
PHONES J100
(X25) (B/2)
REMOTE SENSOR W02
FL1
VOL. DOWN S39
VOL. UP S40
OUTPUT
OPN/CLS S22
TRACK PROGRAM PL1 PL2 S33 S34
TIME PL3 S35
SINGLE PL4 S36
CHECK S29
CLEAR S30
SPACE S32
EDIT S38
1 S1, 2 S2, 3 S3, 4 S4, 5 S5
6 S6, 7 S7, 8 S8, 9 S9, 10 S10
11 S11, 12 S12, 13 S13, 14 S14, 15 S15
16 S16, 17 S17, 18 S18, 19 S19, 20/0 S20
+10 S21
TIME DISP S37
REPEAT S31
◄◄ S27
►► S28
G ⌀3x8 N09-0301-05
K N09-1953-25
O N29-0255-05
S ⌀3x6 (Bi-Tap) N89-3006-46
T ⌀3x8 (Bi-Tap)BLK N89-3008-45
U ⌀3x10 (Bi-Tap)BLK N89-3010-45
W ⌀4x8 (Bi-Tap)BLK N89-4008-45
Z ⌀2.6x6 (Br-Tap) N87-2606-46

Parts with the exploded numbers larger than 700 are not supplied.

PARTS LIST

⁎ New Parts

Parts without **Parts No.** are not supplied.

Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.

Teile ohne **Parts No.** werden nicht geliefert.

DP-5010 (J : Japan made, S : Singapore made)

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti-nation 仕向	Re-marks 備考
200	1C		A01-1514-02	METALLIC CABINET		
201	1D		A09-0078-08	BATTERY COVER(REMOTE CONTROL)		J
201	1D	⁎	A09-0091-08	BATTERY COVER(REMOTE CONTROL)		S
202	2C	⁎	A20-5809-03	PANEL ASSY	PUMUEX	J
202	2C	⁎	A20-5810-03	PANEL ASSY	TE	
203	2D	⁎	A22-1044-12	SUB PANEL ASSY		
204	2C	⁎	A29-0139-03	PANEL (TRAY)		
205	1D		A70-0251-05	REMOTE CONTROLLER ASSY		J
205	1D	⁎	A70-0289-05	REMOTE CONTROLLER ASSY		S
206	2C	⁎	A20-5654-02	PANEL	PUMUEX	J
206	2C	⁎	A20-5732-02	PANEL	TE	
209	1E		B09-0068-05	CAP		
210	2C	⁎	B10-0979-13	FRONT GLASS		
211	2C		B43-0287-04	KENWOOD BADGE		
-			B46-0094-03	WARRANTY CARD	UUE	J
-			B46-0095-03	WARRANTY CARD	UUE	J
-			B46-0096-13	WARRANTY CARD	X	J
-			B46-0121-03	WARRANTY CARD	P	J
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-03	WARRANTY CARD	T	
-		⁎	B50-9234-10	INSTRUCTION MANUAL(ENGLISH)		J
-		⁎	B50-9235-10	INSTRUCTION MANUAL(FRENCH)	PME	J
-		⁎	B50-9236-00	INSTRUCTION MANUAL(SPANISH)	M	J
-		⁎	B50-9237-10	INSTRUCTION MANUAL(G,D,I)	E	J
-		⁎	B50-9725-00	INSTRUCTION MANUAL(ENGLISH)		S
-		⁎	B50-9726-00	INSTRUCTION MANUAL(FRENCH)	E	S
-		⁎	B50-9727-00	INSTRUCTION MANUAL(G,D,I)	E	S
-			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	J
-			B58-0513-04	CAUTION CARD (PRESET220-240)	UE	J
214	1D	⁎	D21-1494-03	EXTENSION SHAFT		
217	2D	⁎	E29-0333-04	LEAD PLATE	E	
218	1C		E30-0505-05	AUDIO CORD		
⚠ 219	1E		E30-0459-05	AC POWER CORD	E	
⚠ 219	1E		E30-0780-05	AC POWER CORD	P	J
⚠ 219	1E		E30-0812-05	AC POWER CORD	UMUE	J
⚠ 219	1E		E30-1341-05	AC POWER CORD	X	J
⚠ 219	1E		E30-1416-05	AC POWER CORD	T	
220	1E		E31-4362-05	WIRING HARNESS (FLAT CABLE-M)		
221	2D		E31-4820-05	WIRING HARNESS (FLAT CABLE)		
223	2C		G11-0155-14	SOFT TAPE (40X9X2)		
224	2D	⁎	G13-0242-04	CUSHION	E	
-		⁎	H01-8341-04	ITEM CARTON CASE		J
-		⁎	H01-8549-04	ITEM CARTON CASE		S
-		⁎	H10-3729-12	POLYSTYRENE FOAMED FIXTURE(L)		J
-		⁎	H10-3730-12	POLYSTYRENE FOAMED FIXTURE(R)		J
-		⁎	H10-3839-02	POLYSTYRENE FOAMED FIXTURE(L)		S
-		⁎	H10-3840-02	POLYSTYRENE FOAMED FIXTURE(R)		S
-			H20-0554-04	PROTECTION COVER	M	J
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0289-04	PROTECTION BAG (850X400X0.05)		S
-			H25-0361-04	PROTECTION BAG	PUUEXT	J

E: Scandinavia & Europe **K**: USA **P**: Canada

U: PX(Far East, Hawaii) **T**: England **M**: Other Areas

UE : AAFES(Europe) **X**: Australia

J : Japan made (P,U,M,UE,X,E,T type)

S : Singapore made (T,E type)

⚠ indicates safety critical components.

PARTS LIST

⁎ New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕 向	Remarks 備考
--			H25-0361-04	PROTECTION BAG	E	J
			J61-0307-05	WIRE BAND	T	
226	2D,2E		J02-1002-05	FOOT		
⚠ 228	1E		J42-0083-05	POWER CORD BUSHING		
270	1D		J19-0506-05	UNIT HOLDER		
271	2E		J19-0581-05	UNIT HOLDER		
275	2D		J21-3326-05	JACK MOUNTING HARDWARE		
236	1D		K29-3363-14	KNOB (POWER)		
237	2D	*	K29-3493-04	KNOB (1-20)		
⚠ 241	1E	*	L01-5701-05	POWER TRANSFORMER	P	J
⚠ 241	1E	*	L01-5702-05	POWER TRANSFORMER	TE	
⚠ 241	1E	*	L01-5702-05	POWER TRANSFORMER	X	J
⚠ 241	1E	*	L01-5704-05	POWER TRANSFORMER	UMUE	J
G	1E		N09-0301-05	TAPTITE SCREW (3X8,+BIND)		
K	1D		N09-1953-25	MACHINE SCREW		
Q	1E		N29-0255-05	PUSH RIVET		
OPERATION UNIT (X25-3XXX-XX) 510-00 : J 620-00 : S						
D12 -15			B30-1012-05	LED(SLP-981C-50)		
C2			CE04JW0J100M	ELECTRO 10UF 6.3WV		
CN1			E10-4002-05	FLAT CABLE CONNECTOR		
J100	2D		E11-0190-05	PHONE JACK (PHONES)		
CP1			R90-0463-05	MULTIPLE RESISTOR(100KX9)		
S1 -40			S40-1064-05	PUSH SWITCH		
D1 -10			HSS104A	DIODE		
D1 -10			1SS131	DIODE		
FL1	1C		FIP10BCM7	FLUORESCENT INDICATOR TUBE		
IC1			LB1433N	IC(LEVEL METER DRIVER)		
Q2 -6			DTA124EN	DIGITAL TRANSISTOR		
Q7 -11			2SC1740S(Q,R)	TRANSISTOR		
W02	1C		W02-0973-05	ELECTRIC CIRCUIT MODULE		
CONTROL CIRCUIT UNIT (X29-189X-XX) 0-05 : J 0-06 : S						
C1			CE04JW1A101M	ELECTRO 100UF 10WV		
C2			CF92FV1H472J	MF 4700PF J		
C3			CC45FSL1H100D	CERAMIC 10PF D		
C4			CC45FSL1H150J	CERAMIC 15PF J		
C5			CC45FSL1H150J	CERAMIC 15PF J		
C6			CE04JW1E330M	ELECTRO 33UF 25WV		
C7			CF92FV1H333J	MF 0.033UF J		
C8			CF92FV1H103J	MF 0.010UF J		
C9			CF92FV1H333J	MF 0.033UF J		
C10 ,11			CE04KW1C470M	ELECTRO 47UF 16WV		
CN3			E10-1705-05	FLAT CABLE CONNECTOR		
L1			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
280	1D	*	N19-1205-05	FLAT WASHER (J02-1002-05ASSY)		
VR1			R12-3100-05	TRIMMING POT.(10K) FE BAL		
VR2			R12-3101-05	TRIMMING POT.(22K) TE BAL		

E: Scandinavia & Europe **K**: USA **P**: Canada
U: PX(Far East, Hawaii) **T**: England **M**: Other Areas
UE : AAFES(Europe) **X**: Australia

J : Japan made (P,U,M,UE,X,E,T type)
S : Singapore made (T,E type)

⚠ indicates safety critical components.

PARTS LIST

＊ New Parts

Parts without **Parts No.** are not supplied.
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Teile ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Desti-nation 仕向	Re-marks 備考
D1			1SS133	DIODE				
D1			1SS176	DIODE				
IC1			CXA1081M	IC(RF AMP)				
Q1			2SA1426	TRANSISTOR				
Q2			2SC945(A)(Q,P)	TRANSISTOR				
CD PLAYER UNIT (X32-1XXX-XX) 360-11 : J(P), 360-21 : J(U,M,UE), 362-71 : J(X,E), 362-72 : J(T), 420-50 : S(T) 422-71 : S(E)								
C9 ,10			CF92FV1H151K	MF	150PF	K		
C11 ,12			CF92FV1H472J	MF	4700PF	J		
C13 ,14			CF92FV1H512J	MF	5100PF	J		
C15 ,16			CF92FV1H102J	MF	1000PF	J		
C17 ,18			CF92FV1H363J	MF	0.036UF	J		
C19 ,20			CE04KW1V100M	ELECTRO	10UF	35WV		
C21			CE04KW0J471M	ELECTRO	470UF	6.3WV		
C22			CE04KW1A470M	ELECTRO	47UF	10WV		
C23			CE04KW1C220M	ELECTRO	22UF	16WV		
C24			CE04KW1A471M	ELECTRO	470UF	10WV		
C25			CE04KW1A470M	ELECTRO	47UF	10WV		
C26			CE04KW1E102M	ELECTRO	1000UF	25WV		
C27			CE04KW0J471M	ELECTRO	470UF	6.3WV		
C28			CE04KW1C220M	ELECTRO	22UF	16WV		
C29			CE04KW1A471M	ELECTRO	470UF	10WV		
C30			CE04KW1C220M	ELECTRO	22UF	16WV		
C31			CE04KW1E102M	ELECTRO	1000UF	25WV		
C32 -35			CF92FV1H102J	MF	1000PF	J	PUMUE	J
C32 -35			CQ09FS1H102J	POLYSTY	1000PF	J	X	J
C32 -35			CQ09FS1H102J	POLYSTY	1000PF	J	ET	
C36 -40			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C41			CE04KW1H4R7M	ELECTRO	4.7UF	50WV		
C42			CE04KW1H101M	ELECTRO	100UF	50WV		
C43 ,44			CE04KW1C222M	ELECTRO	2200UF	16WV		
C45			CE04KW0J221M	ELECTRO	220UF	6.3WV		
C46			CE04KW1C331M	ELECTRO	330UF	16WV		
C47			CE04KW1HR22M	ELECTRO	0.22UF	50WV		
C49			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C50 ,51			CE04KW0J471M	ELECTRO	470UF	6.3WV		
C52			CE04KW0J331M	ELECTRO	330UF	6.3WV	T	
C52			CE04KW1A101M	ELECTRO	100UF	10WV	PUMUEX	J
C52			CE04KW1A101M	ELECTRO	100UF	10WV	E	
C53			CE04KW1V100M	ELECTRO	10UF	35WV		
C54			CE04KW1A101M	ELECTRO	100UF	10WV		
C55			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C56			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C57			CF92FV1H332J	MF	3300PF	J		
C58			CE04KW1C331M	ELECTRO	330UF	16WV		
C59			CE04KW1H4R7M	ELECTRO	4.7UF	50WV		
C60		＊	CE04DW1V221M	ELECTRO	220UF	35WV		
C61			CK45FB1H681K	CERAMIC	680PF	K		
C62			CE04KW1V100M	ELECTRO	10UF	35WV		J
C62		＊	CE04LW1C330M	ELECTRO	33UF	16WV		S
C63			CF92FV1H184J	MF	0.18UF	J		
C64			C90-1332-05	NP-ELEC	10UF	25WV		
C65			CF92FV1H103J	MF	0.010UF	J		
C67			CC45FSL1H331J	CERAMIC	330PF	J		
C68			C90-1456-05	NP-ELEC	0.22UF	50WV		
C69			CF92FV1H333J	MF	0.033UF	J		

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C70			CF92FV1H472J	MF 4700PF J		
C71			CC45FSL1H101J	CERAMIC 100PF J		
C72			CE04KW1A101M	ELECTRO 100UF 10WV		
C73			CE04KW1V100M	ELECTRO 10UF 35WV		
C74			CE04KW1A101M	ELECTRO 100UF 10WV		
C75			CC45FSL1H101J	CERAMIC 100PF J	UMUE	J
C75			CK45FF1H103Z	CERAMIC 0.010UF Z	PX	J
C75			CK45FF1H103Z	CERAMIC 0.010UF Z	ET	
C76			CE04KW1V100M	ELECTRO 10UF 35WV		
C77			CK45FF1H103Z	CERAMIC 0.010UF Z		
C79			CE04KW1H4R7M	ELECTRO 4.7UF 50WV		
C80			CK45FF1H103Z	CERAMIC 0.010UF Z		
C82			CK45FF1H473Z	CERAMIC 0.047UF Z		
C83			C90-1349-05	NP-ELEC 1UF 50WV		
C84			C90-1456-05	NP-ELEC 0.22UF 50WV		
C85			CC45FSL1H330J	CERAMIC 33PF J		
C86		*	CE04LW1H2R2M	ELECTRO 2.2UF 50WV		S
C86			C90-1349-05	NP-ELEC 1UF 50WV		J
C87			CF92FV1H104J	MF 0.10UF J		
C88			CF92FV1H333J	MF 0.033UF J		
C89			CF92FV1H183J	MF 0.018UF J		
C90			CE04KW1H4R7M	ELECTRO 4.7UF 50WV		
C91			CC45FSL1H331J	CERAMIC 330PF J		
C92			CF92FV1H124J	MF 0.12UF J		
C93			CC45FSL1H101J	CERAMIC 100PF J		
C94			CE04KW1C330M	ELECTRO 33UF 16WV		
C95 ,96			CK45FB1H222K	CERAMIC 2200PF K		
C97			CC45FUJ1H050C	CERAMIC 5.0PF C		
C98			CC45FUJ1H121J	CERAMIC 120PF J		
C99			CC45FUJ1H330J	CERAMIC 33PF J		
C100,101			CK45FF1H103Z	CERAMIC 0.010UF Z		
C102			CF92FV1H332J	MF 3300PF J		
C103			CF92FV1H103J	MF 0.010UF J		
C104			CE04KW0J221M	ELECTRO 220UF 6.3WV		
C105			CK45FF1H103Z	CERAMIC 0.010UF Z		
C106			CE04KW0J471M	ELECTRO 470UF 6.3WV		
C107			CE04KW1C220M	ELECTRO 22UF 16WV		
C108			CE04KW1V100M	ELECTRO 10UF 35WV		
C109			CE04KW1C220M	ELECTRO 22UF 16WV		
C110			CC45FSL1H150J	CERAMIC 15PF J		
C111		*	CC45FSL1H120J	CERAMIC 12PF J		S
C111			CC45FSL1H150J	CERAMIC 15PF J		J
C112			C90-1455-05	NP-ELEC 0.1UF 50WV		
C113			CK45FF1H103Z	CERAMIC 0.010UF Z		
C114			CE04KW1A101M	ELECTRO 100UF 10WV		
C115			CK45FF1H103Z	CERAMIC 0.010UF Z		
C123,124			C90-1334-05	NP-ELEC 47UF 10WV		
C125,126			CE04KW0J331M	ELECTRO 330UF 6.3WV		
C127			CK45FF1H103Z	CERAMIC 0.010UF Z		
C130			CK45FF1H103Z	CERAMIC 0.010UF Z		
C131,132			CF92FV1H102J	MF 1000PF J		
C133,134			CE04KW1A101M	ELECTRO 100UF 10WV		
C135,136			CC45FSL1H330J	CERAMIC 33PF J		
C137,138			CE04KW1A470M	ELECTRO 47UF 10WV		
C194			CK45FF1H473Z	CERAMIC 0.047UF Z		

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C195			CE04KW1H4R7M	ELECTRO 4.7UF 50WV		
C196,197			CK45FF1H473Z	CERAMIC 0.047UF Z	T	
C199			CC45FSL1H101J	CERAMIC 100PF J	PXET	
C200			CF92FV1H124J	MF 0.12UF J		
C201			CC45FSL1H101J	CERAMIC 100PF J		
C202,203			CF92FV1H104J	MF 0.10UF J		
C204,205			CK45FF1H103Z	CERAMIC 0.010UF Z		
⚠ C210,211			C91-0647-05	CERAMIC 0.01UF P		
⚠ C212			C91-0647-05	CERAMIC 0.01UF P	PX	J
⚠ C212			C91-0647-05	CERAMIC 0.01UF P	ET	
C213-216			CF92FV1H102J	MF 1000PF J		
C217			CK45FF1H103Z	CERAMIC 0.010UF Z		
C218,219			CK45FF1H103Z	CERAMIC 0.010UF Z	PXET	
CN1			E10-4001-05	FLAT CABLE CONNECTOR		
CN4			E10-1705-05	FLAT CABLE CONNECTOR		
J300	1E		E13-0483-05	PHONO JACK (LINE OUTPUT)		
J301	1E		E13-0137-05	PHONO JACK (DIGITAL OUTPUT)		
L1 ,2			L33-0358-05	CHOKE COIL		
L3 -5			L33-0328-05	CHOKE COIL		
L6 -8			L33-0358-05	CHOKE COIL		
L9 -11			L40-2292-17	SMALL FIXED INDUCTOR(2.2UH,M)		
L12 ,13			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
L14			L32-0328-15	OSCILATING COIL (VCO)		
L15			L39-0152-05	MATCHING COIL		
L16			L33-0328-05	CHOKE COIL		
L17			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)		
L20 ,21			L40-1011-17	SMALL FIXED INDUCTOR(100UH,K)	PX	J
L20 ,21			L40-1011-17	SMALL FIXED INDUCTOR(100UH,K)	ET	
L20 ,21			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)	UMUE	J
L22 ,23			L40-2292-17	SMALL FIXED INDUCTOR(2.2UH,M)		
L24 ,25			L40-1011-17	SMALL FIXED INDUCTOR(100UH,K)	PX	J
L24 ,25			L40-1011-17	SMALL FIXED INDUCTOR(100UH,K)	ET	
L24 ,25			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)	UMUE	J
⚠ L26			L79-0190-05	LINE FILTER	PX	J
⚠ L26			L79-0190-05	LINE FILTER	ET	
⚠ L26			L79-0733-05	LINE FILTER	PX	J
⚠ L26			L79-0733-05	LINE FILTER	ET	
X1			L77-1119-05	CRYSTAL RESONATOR		
R13 ,14			RN14BK2C1961F	RN 1.96K F 1/6W		
R15 -18			RN14BK2C1331F	RN 1.33K F 1/6W		
R19 ,20			RN14BK2C2611F	RN 2.61K F 1/6W		
R21 ,22			RN14BK2C1101F	RN 1.10K F 1/6W		
R23 -26			RN14BK2C1961F	RN 1.96K F 1/6W		
R27 ,28		*	RN14BK2C4640F	RN 464.0 F 1/6W		
R29 ,30			RN14BK2C3831F	RN 3.83K F 1/6W		
R45 ,46			RN14BK2C1000F	RN 100.0 F 1/6W		
R49			RS14KB3D101J	FL-PROOF RS 100 J 2W		
R83			RS14KB3A100J	FL-PROOF RS 10 J 1W		
R212,213			RS14KB3D8R2J	FL-PROOF RS 8.2 J 2W		
R251-254			RN14BK2C10R0F	RN 10.0 F 1/6W		
R259,260			RN14BK2C1000F	RN 100.0 F 1/6W		
R265,266			RN14BK2C4641F	RN 4.64K F 1/6W		
R267-270			RN14BK2C4642F	RN 46.4K F 1/6W		

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VR1 ,2			R12-1087-05	TRIMMING POT.(3.3K)LINE OUTPUT		
VR5		⁎	R29-9020-05	POTENTIOMETER		
VR6 ,7			R12-3126-05	TRIMMING POT.(10K)F/T GAIN		
K1			S51-2068-05	MAGNETIC RELAY		
⚠ S1	1E		S40-1103-05	PUSH SWITCH (POWER TYPE)		
⚠ S2	1E		S31-2128-05	SLIDE SWITCH (POWER TYPE)	UMUE	J
D1 -6			S5566B	DIODE		
D7 -10			HSS104	DIODE		
D7 -10			1SS133	DIODE		
D11			S5566B	DIODE		
D12			HZS8.2N(B2)	ZENER DIODE		
D12			RD8.2ES(B2)	ZENER DIODE		
D13 -16			S5566B	DIODE		
D17			HSS104	DIODE		
D17			1SS133	DIODE		
D18			HSS104	DIODE		J
D18			S5566B	DIODE		S
D18			1SS133	DIODE		J
D20			HZS5.1S(B2)	ZENER DIODE		
D20			RD5.1JS(B2)	ZENER DIODE		
D21			HZS10N(B)	ZENER DIODE		
D21			RD10ES(B)	ZENER DIODE		
D22			HZS5.1S(B2)	ZENER DIODE		
D22			RD5.1JS(B2)	ZENER DIODE		
D23			HSS104	DIODE		
D23			1SS133	DIODE		
D24 ,25			S5566B	DIODE		
D28			HSS104	DIODE		
D28			1SS133	DIODE		
D33			HZS5.1S(B2)	ZENER DIODE		
D33			RD5.1JS(B2)	ZENER DIODE		
D34			HSS104	DIODE		
D34			1SS133	DIODE		
D35			HZS11N(B2)	ZENER DIODE		
D35			RD11ES(B2)	ZENER DIODE		
D36 ,37			HSS104	DIODE		
D36 ,37			1SS133	DIODE		
D38			HZS13N(B2)	ZENER DIODE		
D38			RD13ES(B2)	ZENER DIODE		
D39			HSS104	DIODE		
D39			1SS133	DIODE		
D40			HZS5.1S(B2)	ZENER DIODE		
D40			RD5.1JS(B2)	ZENER DIODE		
D41			HSS104	DIODE		
D41			1SS133	DIODE		
D42			1SV147	VARISTOR		
D43 ,44			HSS104	DIODE		
D43 ,44			1SS133	DIODE		
D45			HZS5.1S(B2)	ZENER DIODE		
D45			RD5.1JS(B2)	ZENER DIODE		
D46			HSS104A	DIODE		
D46			1SS131	DIODE		
D47			S5566B	DIODE		
D49 ,50			HSS104	DIODE		

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D49 ,50			1SS133	DIODE		
D53			HZS11N(B2)	ZENER DIODE		
D53			RD11ES(B2)	ZENER DIODE		
D54 -57			HSS104	DIODE		
D54 -57			1SS133	DIODE		
IC1			TC74HC00P	IC(QUAD 2-INPUT NAND GATE)		
IC2 ,3			NJM4558D	IC(OP AMP X2)		
IC4 ,5			NJM4565D	IC(OP AMP X2)		
IC6			M5218P	IC(OP AMP X2)		
IC7 ,8			PCM56P-L	IC(DA CONVERTER)		
IC9			M5218P	IC(OP AMP X2)		
IC10			CXA1244S	IC(SERVO SIGNAL PROCESSOR)		
IC11			NJM4558D	IC(OP AMP X2)		
IC12			M5218P	IC(OP AMP X2)		
IC13			TC74HC04P	IC(HEX INVERTER)		
IC14			SM5813AP	IC(8FS DIGITAL FILTER)		
IC15			NJM4558D	IC(OP AMP X2)		
IC16		⁎	UPD75212ACW-052	IC(MICROPROCESSOR)		
IC18			CXK5816SP-15L	IC(2KX8 RAM)		
IC19			TC74HC74P	IC(D-FLIP FLOP)		
IC20			CXD1125Q	IC(DIGITAL SIGNAL PROCESSOR)		
IC20			CXD1125QZ	IC(DIGITAL SIGNAL PROCESSOR)		
IC21			NJM78L05A	IC(VOLTAGE REGULATOR/ +5V)		
IC21			UPC78L05J	IC(VOLTAGE REGULATOR/ +5V)		
IC22			NJM4558D	IC(OP AMP X2)		
Q1			2SB941	TRANSISTOR		
Q2			2SC3940A	TRANSISTOR		
Q3			2SD1266(Q,P)	TRANSISTOR		
Q4			2SA1534A	TRANSISTOR		
Q5			DTC124EN	DIGITAL TRANSISTOR		
Q6 ,7			2SK246(Y,GR)	FET		
Q8			2SA733(A)(Q,P)	TRANSISTOR		
Q8			2SA933S(Q,R)	TRANSISTOR		
Q9			2SC1740S(Q,R)	TRANSISTOR		
Q9			2SC945(A)(Q,P)	TRANSISTOR		
Q10			2SA733(A)(Q,P)	TRANSISTOR		
Q10			2SA933S(Q,R)	TRANSISTOR		
Q11			2SA1534A	TRANSISTOR		
Q12			2SA733(A)(Q,P)	TRANSISTOR		
Q12			2SA933S(Q,R)	TRANSISTOR		
Q13 ,14			2SA954(L,K)	TRANSISTOR		
Q15			2SC1740S(Q,R)	TRANSISTOR		
Q15			2SC945(A)(Q,P)	TRANSISTER		
Q16			2SC1740S(Q,R)	TRANSISTOR		
Q16			2SC945(A)(Q,P)	TRANSISTOR		
Q17			2SA733(A)(Q,P)	TRANSISTOR		
Q17			2SA933S(Q,R)	TRANSISTOR		
Q18 -20			2SC2003(L,K)	TRANSISTOR		
Q21 ,22			2SA954(L,K)	TRANSISTOR		
Q30			2SA954(L,K)	TRANSISTOR		
Q31			2SC3666	TRANSISTOR		
Q32			2SA1426	TRANSISTOR		
Q33 ,34			2SC2878(B)	TRANSISTOR		
Q35			DTA124EN	DIGITAL TRANSISTOR		
Q36			2SB772(Q,P,E)	TRANSISTOR		

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Q37			2SC2003(L,K)	TRANSISTOR		
Q38			2SD1266(Q,P)	TRANSISTOR		
Q40			2SC2003(L,K)	TRANSISTOR		
Q41			STA341M	TRANSISTOR		
MECHANISM ASS'Y (X92-1300-02) : Japan made						
1	1A		A11-0278-03	SUB CHASSIS		
2	2B	*	D02-0086-08	TURNTABLE PLATTER		
3	1A		D10-2227-03	SLIDER		
4	2B	*	D10-2249-04	ROD		
5	2A		D13-0722-04	GEAR		
6	2A		D13-0723-04	GEAR		
7	2A		D13-0724-03	GEAR		
8	3B	*	D13-0745-08	GEAR		
9	2B	*	D13-0746-08	GEAR		
10	2B	*	D13-0747-04	GEAR		
12	2A		D16-0191-04	BELT		
15	2B	*	F07-0546-08	COVER		
16	1A	*	F19-0593-04	BLIND PLATE		
17	3B	*	F31-0182-04	REINFORCING HARDWARE		
19	2B	*	G01-2308-08	COMPRESSION SPRING		
20	2A		G02-0493-04	FLAT SPRING (L)		
21	2B		G02-0494-04	FLAT SPRING (R)		
22	3B		G02-0495-08	FLAT SPRING		
23	2B,3B		G01-2380-08	COMPRESSION SPRING		
24	2B		G01-2381-08	COMPRESSION SPRING		
25	3A		J02-0386-04	FOOT		
27	1A		J11-0130-03	CLAMPER		
28	2A		J11-0134-05	WIRE CLAMPER		
29	2B	*	J19-3165-03	HOLDER		
30	2B,3B		J02-1027-05	INSULATOR		
31	3B		J42-0170-08	BUSHING		
32	2A	*	J90-0617-03	GUIDE		
33	2A	*	J90-0618-03	GUIDE		
34	3B	*	J90-0623-08	RAIL		
35	2B	*	J90-0624-08	GUIDE		
36	1B	*	J91-0372-05	PICKUP		
37	1B		J99-0053-01	TRAY		
40	2A		N19-0891-04	FLAT WASHER		
41	1A		N19-1170-04	FLAT WASHER		
42	2B	*	N19-1179-05	FLAT WASHER		
A	1A,2A		N09-1898-15	MACHINE SCREW		
B	3B	*	N09-2613-05	SEMS (TAPTITE SCREW)		
C	2A	*	N09-2627-05	MACHINE SCREW		
D	3B	*	N09-2628-05	MACHINE SCREW		
R	2B		N09-1522-05	SET SCREW (3X8)		
S1	3B	*	S46-1122-05	LEAF SWITCH		
S2	3A		S33-2060-05	LEVER ROTARY SWITCH		
45	3A		T42-0483-05	DC MOTOR		
46	3B	*	T42-0495-05	DC MOTOR		
47	3B	*	T42-0496-05	DC MOTOR		
48	3B	*	T42-0497-08	MOTOR ASSY		
49	1A		T50-1036-04	YOKE		

E: Scandinavia & Europe K: USA P: Canada
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S : Singapore made (T,E type)

⚠ indicates safety critical components.

DP-5010

PARTS LIST

⁎ New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部 品 番 号	Description 部 品 名／規 格	Desti-nation 仕 向	Re-marks 備考
51	1A		T99-0222-05	MAGNET		
MECHANISM ASS'Y (X92-1340-03) : Singapore made						
101	1C		A11-0617-08	SUB CHASSIS ASSY		
102	2D		A11-0618-08	SUB CHASSIS ASSY		
106	2D	*	D10-2314-08	STOPPER LINK ASSY		
107	3D		D10-2315-08	ROD		
108	3D	*	D12-0126-08	CONTROL CAM		
110	1C	*	D13-0799-08	DRIVE GEAR		
111	1D	*	D13-0800-08	GEAR		
112	1D	*	D13-0801-08	DOADING PULLEY		
113	2D		D13-0802-08	GEAR (A)		
114	2D		D13-0803-08	GEAR (B)		
115	1D	*	D14-0300-08	ROLLER		
116	1D	*	D16-0276-08	BELT (M)		
121	3C		E40-3263-05	CONNECTOR (5P)		
122	3C,3D	*	E40-3262-05	CONNECTOR (4P)		
125	3D		F07-0554-08	COVER (GEAR)		
126	1D	*	F19-0595-08	COVER (GEAR)		
127	1D	*	F31-0187-08	REINFORCING HARDWARE		
130	3D	*	F31-0188-08	STOPPER		
128	1D	*	G01-2375-08	COMPRESSION SPRING (A)		
129	1D	*	G01-2376-08	COMPRESSION SPRING (B)		
131	1D	*	G02-0917-08	SPRING		
132	2D	*	G02-0918-08	TRAY GUIDE SPRING (R)		
133	1D	*	G02-0919-08	TRAY GUIDE SPRING (L)		
134	2C	*	G13-0237-08	CUSHION		
136	1D	*	J02-1019-08	INSULATOR		
137	2C	*	J02-1020-08	FOOT (R)		
138	2D	*	J02-1021-08	FOOT (REAR)		
139	2D	*	J02-1022-08	FOOT (L)		
142	1C	*	J11-0145-08	CLAMPER		
143	3D		J19-3148-08	HOLDER (ROD)		
144	3D	*	J25-6134-08	PRINTED WIRING BOARD(MOTOR)		
146	2D	*	J30-0261-08	SPACER		
147	2D	*	J30-0262-08	SPACER		
148	2D	*	J30-0263-08	SPACER		
149	2D	*	J32-0828-08	BOSS		
150	1D	*	J42-0619-08	BUSHING		
151	1C,1D	*	J90-0638-08	GUIDE (FRONT)		
152	2C,1D	*	J90-0639-08	GUIDE (REAR)		
153	3D		J90-0640-08	GUIDE (SLIDE)		
154	3D	*	J91-0385-08	PICK UP		
155	2C	*	J99-0064-08	TRAY		
156	3C		J11-0134-05	WIRE CLAMPER		
–			J61-0307-05	WIRE BAND		
159	1D	*	N19-1208-08	FLAT WASHER		
160	1D	*	N19-1209-08	FLAT WASHER		
A	1C,1D		N09-2628-05	SCREW		
B	3D	*	N09-2669-08	SCREW		
C	2D		N09-2670-08	SCREW (M1.7X3)		
D	3D		N09-2671-08	SCREW		
E	3D		N09-2680-05	SCREW		

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⁎ New Parts

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti-nation 仕向	Re-marks 備考
F	2C		N09-1898-15	MACHINE SCREW		
164	3D		S46-1128-08	LEAF SWITCH		
165	2D	⁎	S46-2109-08	LEAF SWITCH		
168	3D	⁎	T42-0526-08	MOTOR ASSY (LOADING)		
169	3D	⁎	T42-0527-08	MOTOR ASSY (SLED)		

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DP-5010

SPECIFICATIONS

[Format]

Type:	Compact disc player
Read system:	Non-contact optical pickup
Rotational speed:	About 200 to 500 rpm (CLV)

[Audio]

Frequency responce:	4 Hz ~ 20 kHz
Signal-to-noise ratio:	more than 104 dB
Total harmonic distortion:	0.003% (at 1 kHz T.H.D.)
Channel separation:	more than 102 dB
Wow flutter:	Below measurable limit
Output	
LINE (FIXED):	2.0 V
(VARIABLE):	0 ~ 2.0 V
DIGITAL (COAXIAL):	0.5 V p-p, 75 ohms
Headphone jack:	60 mW (8 ohms)

Power consumption:	17 W
Maximum dimensions:	W: 440 mm (17-5/16") H: 107 mm (4-3/16") D: 311 mm (12-1/4")
Weight:	5.4 kg (11.9 lb)

[Wireless remote control unit]

Model:	RC-P8010
Type:	Infrared pulse
Power supply:	DC 3 V (two R6/AA batteries)
Maximum dimensions:	W: 176 mm (6-3/16") H: 64 mm (2-11/16") D: 18 mm (11/16")
Weight:	121 g (with batteries) (0.27 lb)

Note:
KENWOOD follows a policy of continuous development. For this reason specifications may be changed without notice.

Note :
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the Canada (P) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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